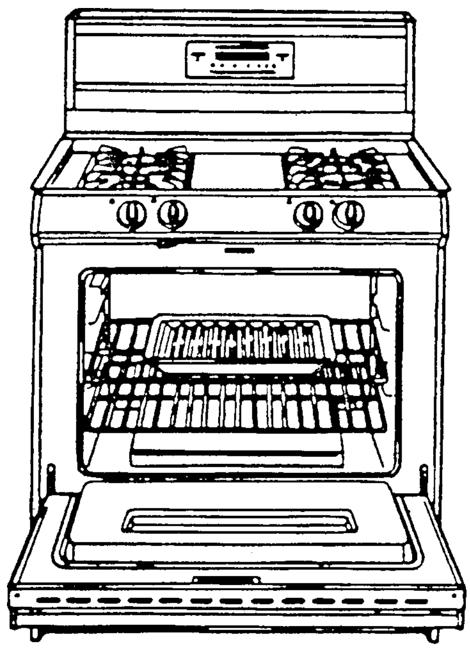
Models and manufacturing numbers
in this manual see page 2A.

# Service

## RST and RSS Gas Ranges

Service Manual for
Caloric®



This manual is to be used by qualified appliance technicians only. Amana does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.

Amana

RC231002
Revision 3
May 1998

# INDEX



**REPLACE MANUAL 56397 AND 56074 WITH THIS MANUAL, RC231002.**

REV. 1 - ADDED RSS MODELS TO MANUAL.

REV. 2 - ADDED RST382UK, P1141228N; RST388UWW, P1141246N; and RST399UL/W, P1132642N.

# MODEL AND MANUFACTURING NUMBERS

| MODEL | M/N |
|---|---|
| RSS307 | |
| RSS307-OF | |
| RSS343 | |
| RSS352-OF | |
| RSS353-OF | |
| RSS354-OF | |
| RSS355-OF | |
| RSS356UL | P1141233N, P1141234N, P1130975N |
| RSS356UW | P1141233N, P1141234N, P1130975N |
| RSS358UL | P1130875N, P1141226N, P1130974N |
| RSS358UL | P1141231N |
| RSS358ULG | P1141218N, P1141226NLG, P1141232N |
| RSS358ULGCO | P1141219N |
| RSS358UW | P1130875N |
| RSS358UW/L | P1141231N |
| RSS358UWG | P1141218N, P1141226NWG, P1141232N |
| RSS358UWGCO | P1141219N |
| RSS359 | |
| RSS359-OF | |
| RSS361 | |
| RSS361-OF | |
| RSS363 | |
| RSS363-OF | |
| RSS369 | |
| RSS369-OF | |
| RSS380 | |
| RSS380-OF | |
| RST307 | |
| RST308UK | P1130723N, P1130725N, P1130727N |
| RST308UW | P1130723N, P1130725N, P1130727N |
| RST308UL | P1130723N, P1130725N, P1130727N |
| RST308UWW | P1130724N, P1130725N |
| RST308UWW1 | P1130726N, P1130728N |
| RST309 | |
| RST354 | |
| RST359 | |
| RST361 | |
| RST362 | |
| RST365 | |
| RST369 | |
| RST376 | |
| RST378UL | P1141203N |
| RST378UW | P1141203N |
| RST380 | |
| RST381 | |
| RST382UK | P1141220N, P1141228N |
| RST387 | |
| RST388UWW | P1141221N, P1141229N, P1141246N |
| RST3997UL/W | P1132635N, P1132642N, P1132621N, P1132622N |

# IMPORTANT INFORMATION

Great pride and workmanship go into every product to provide our Customers with the highest possible quality. We realize, however, that during its lifetime the product may require service. The information contained in this manual is intended for use by a qualified service technician who is familiar with the safety procedures required in the repair and who is equipped with the proper tools and testing instruments.

**WARNING**

**REPAIRS COVERED IN THIS MANUAL THAT ARE MADE BY UNQUALIFIED PERSONS CAN RESULT IN HAZARDS DUE TO IMPROPER ASSEMBLY OR ADJUSTMENTS SUBJECTING INEXPERIENCED PERSONS MAKING SUCH REPAIRS TO THE RISK OF INJURY OR ELECTRICAL SHOCK WHICH CAN BE SERIOUS OR EVEN FATAL.**

## IMPORTANT NOTE TO CONSUMER

**CAUTION**

**IF YOU PERFORM SERVICE ON YOUR OWN PRODUCT, YOU MUST ASSUME RESPONSIBILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. AMANA WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE AND/OR SERVICE PROCEDURES.**

In order to locate an authorized service agency. please consult your telephone book or the dealer from whom you purchased this product. If you require further assistance, please contact:

CUSTOMER RELATIONS DEPT.<br>AMANA, IOWA 52204

OR

1-319-622-5511<br>CALL and ask for the<br>Customer Relations Department

Users of Caloric products outside of the United States and Canada should contact:

EXPORT CUSTOMER RELATIONS DEPARTMENT<br>AMANA REFRIGERATION, INC.<br>AMANA, IOWA 52204, USA<br>TELEX: 4330076 AMANA<br>CABLE: "AMANA", AMANA, IOWA, USA

**RECOGNIZE SAFETY SYMBOLS, WORDS AND LABELS**

**DANGER -** Immediate hazards which WILL result in severe personal injury or death.

**WARNING -** Hazards or unsafe practices which COULD result in severe personal injury or death.

**CAUTION -** Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

**DANGER**

**WARNING**

**CAUTION**

# GENERAL INFORMATION

## GENERAL INFORMATION

This manual provides you with complete instructions and suggestions for handling, installing, and servicing Caloric Self-Cleaning Gas Ranges.

This manual is based on information gained through experience and careful testing. This information, if followed carefully, will assure the customer of proper unit operation with a minimum of servicing requirements, thus insuring the maximum benefits of clean, modern cooking. Unless the unit is properly installed and carefully explained, the customer will not receive the utmost advantages that gas cooking provides.

Feel free at all times, to call Caloric to discuss any problems which may not be fully understood.

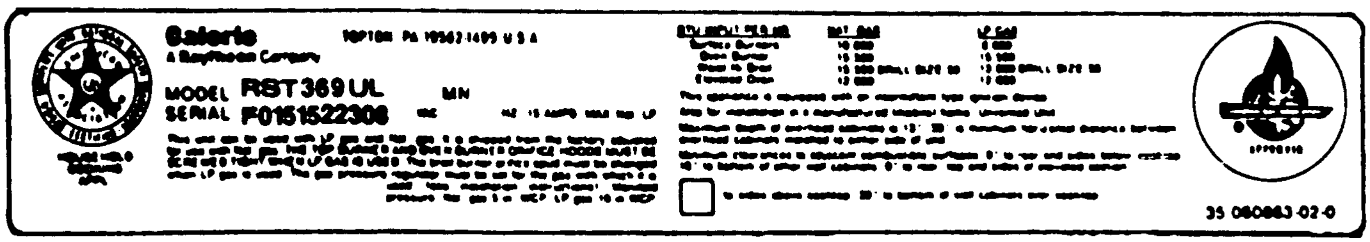
Refer to the Parts Catalog when replacement parts are needed.

## MODEL IDENTIFICATION

The correct model number, manufacturing number (MN or P), and serial number should be known prior to ordering parts so that incorrect shipments and delays can be avoided. (See Rating Label example.)

The rating label is located in the burner box of the unit and can be observed by raising the main top. The rating label on sealed burner units is located on the front frame behind the storage drawer.

The wiring diagram is located on the bottom of the storage drawer assembly.




### CALORIC MODEL DESCRIPTION BREAKDOWN

| R | | S | | T | 3 | | 8 | | O | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCT LINE | | PRODUCT TYPE | | SERIES | WIDTH ON TOP | | BACKGUARD | | FEATURE | F | |
| E | Electric | C | Convertible | D | 0 | No Width | 0 | No Backguard | Varible | N | Natu |
| | | H | High Boil | S | | Required | 1 | Plain Rail/ | | L | Bottl |
| R | Gas | J | Hi-Broil w/ Cont. | T | 1 | 15" - 18" | | Laminated Top | | U | Unive |
| T | Trash | | Cleaning Panels | | 2 | 20" - 18" | 2 | Plain Rail/ | | X | Expo |
| | Compactor | | Upper Oven | | 3 | 30" - 35" | | Cutting Board | | 1 | 115 \ |
| H | Vent Hood | K | Microwave | | 4 | 40" - 42" | 3 | 4" Backguard | | 2 | 230 \ |
| | | | Lower-Self | | 6 | 36" | | w/Auto-Timer | | 8 | 208 \ |
| M | Microwave | | Cleaning | | | | 4 | Special | | | |
| | | | Low boil | | | | | Designation | | | |
| | | L | Low Boil w/ | | | | 5 | Standard | | | |
| | | M | Cont. Cleaning | | | | 6 | Deluxe | | | |
| | | | Panels | | | | | Backguard | | | |
| | | | Portable | | | | 7 | Special | | | |
| | | P | Self-Clean | | | | | Designation | | | |
| | | S | Cook Top | | | | 8 | Deluxe | | | |
| | | T | Under-Counter | | | | | Backguard | | | |
| | | U | Wall Oven | | | | 9 | Double Decker | | | |
| | | W | Wall Oven w/ | | | | | | | | |
| | | X | Cont. Cleaning | | | | | | | | |
| | | | Panels | | | | | | | | |
| | | | Self-Cleaning | | | | | | | | |
| | | Y | Wall Oven | | | | | | | | |
| | | | Micro- | | | | | | | | |
| | | R | Combination | | | | | | | | |

# GENERAL INFORMATION

**RECEIVING**

Inspect unit thoroughly at time of delivery. Report any visible damage to the carrier immediately. If the damage is "concealed" and not discovered until after delivery has been accepted, make a "concealed damage report" to the carrier. "Concealed damage report" forms may be obtained from the carrier's agent.

This procedure must be followed: All shipments, i.e., complete range or parts, are shipped at the buyer's risk. Manufacturer's responsibility ends when the consignment is accepted by the carrier in "good order". Manufacturer will give every assistance on damage claims by supplying any necessary supporting papers, such as invoices or bills of lading. It must be understood that this assistance does not imply acceptance of responsibility for settlement of such claims. Claims for loss or damage cannot be deducted from the invoice or payment of the invoice cannot be withheld pending adjustment of claims. Do not return any unit or parts for credit without written consent.

**CARE AND HANDLING OF PORCELAIN ENAMEL**

1. Porcelain enamel is glass that has been fused onto a metal surface. Because it is glass, however, it cannot be guaranteed.

   It is impossible to make perfect color match in commercial enamel, and occasional variations must be expected. Minor imperfections are not just causes for complaint or rejection.

   Porcelain will not stand heavy, sharp blows from cooking utensils or any other object.

   In cleaning enamel, soap and water will usually suffice. Remove any discoloration promptly, but do not apply cold water to a hot surface.

   Fruit juices, vegetable acids, sour milk, or strong mineral acids may discolor or etch enamel.

2. Cleaning Broiler Pan

   For simplest method of cleaning, it is recommended that broiler pan be submerged in warm water immediately after use. Use a stiff brush, if necessary. Reheating broiler pan after it has been used without cleaning will result in fats and greases burning on and becoming much more difficult to remove.

   **NOTE:** After the food has been removed from the oven or broiler, and the unit has been turned off, leave the oven and broiler door open for a few minutes to dry out the interior. If food has cooked over or grease has spattered the interior, clean the parts thoroughly as soon as cool enough using dry cloth. If not cleaned, there may be noticeable smoke, odor, or visible dirt the next time the unit is used.

3. Crazing - Craze is the name given to the small hair line marks which are sometimes found in enameled surfaces after use. They look like little cracks, but they are not. The enamel around them will never chip or peel off due to these marks. As we cannot guarantee enamel against crazing or discoloration, the customer should be informed as to the proper care of enamel.

   To the customer, any mark is a defect, as they do not understand enamel. They are afraid the enamel will peel or crack off leaving a rusty spot. This is not true as craze marks will never peel or crack. A craze mark is simply a place where the outer coat of enamel has separated. The dark color that appears in the crack is dust that catches in the opening.

   To service a craze complaint, it is best to use the following: Explain crazing to the customer using as an illustration the effect of hot water in a cold glass - it cracks. Compare it to the hairlines in dishes and cups due to continued heating and cooling. If the customer can be made to understand that the enamel will never come off, the customer will be satisfied.

   One point to remember with service calls on crazing is to take care of it immediately. The longer the customer has to wait, the worse it appears to her. While this is true of all service work, it is especially true of crazing complaints. Make it a point to go out the same day the complaint is received.

**CARE AND HANDLING OF CHROME, GLASS, OR METAL FINISH**

To keep the stainless, chrome, or glass finishes "looking new" wash with soap and water, rinse, then dry with a clean cloth. If a polish is necessary, only the highest quality chrome cleaning compounds are recommended.

Finger marks and smears may easily be removed with a mild cleaner such as glass wax and simonize cleaner. Such agents should be used sparingly. Never use ordinary steel wool as it may leave a film of iron which will rust and discolor creating the illusion that the finish is rusting.

Never use harsh, gritty cleaners which can "age" or damage the porcelain and/or polished metal trim.

Never use strong chemical oven cleaners in a self-clean oven. They are unnecessary and their residues can produce noxious odors during self-clean, with oven temperatures of 900°F. or more.

# GENERAL INFORMATION

**SPECIFICATIONS - Burner Ratings - RST**

| | | |
|---|---|---|
| Non Sealed | Nat | 10,000 BTU/HR |
| Top Burner | LP | 7,000 BTU/HR |
| | | |
| Sealed Top | Nat | 9,000 BTU/HR |
| Burner | LP | 7,000 BTU/HR |
| | | |
| Cast Sealed RST/RSS | | |
| Top Burner | | |
| Large (3) | Nat | 9,000 BTU/HR |
| | LP | 8,000 BTU/HR |
| Small (1) | Nat | 7,000 BTU/HR |
| | LP | 6,000 BTU/HR |
| | | |
| Oven Burner | Nat | 15,500 BTU/HR |
| Lower | LP | 15,000 BTU/HR |
| | | |
| Broil | Nat | 15,500 BTU/HR |
| Burner | LP | 13,000 BTU/HR |
| | | |
| Oven Burner | Nat | 12,000 BTU/HR |
| Upper | LP | 12,000 BTU/HR |

BURNER ORIFICE SIZES - Universal Models

**Non Sealed Top Burners** are equipped with #54 double coaxial orifices and universal pin.

**Sealed Top Burners** are equipped with a 4-#54 orifice spud for natural gas and separately packed 4-#68 orifice spud to convert to LP gas.

or

beginning October 22, 1990 at serial number F0430127550 the venturi type top burners are equipped with #54 double coaxial orifices and universal pin.

**Cast Sealed Top Burners** are equipped with 3-#54 double coaxial orifices with universal pins and 1-#56 double coaxial orifice with universal pin.

**Lower Oven Burner** is equipped with a #50 double coaxial orifice and universal pin.

**Broil Burner** is equipped with a #54 orifice spud and separately packed orifice spud to convert to LP gas.

**Upper Oven Burner** is equipped with a #52 double coaxial orifice and universal pin.

**ELECTRICAL REQUIREMENTS**

These ranges should be connected to a separate 115 volt, 60 cycle AC three-wire "U" ground receptacle, parallel slots.

**SPECIFICATIONS - Burner Ratings - RSS**

| | | |
|---|---|---|
| NON SEALED | | |
| Top Burner | Nat | 10,000 BTU/HR |
| Top Burner | LP | 8,000 BTU/HR |
| | | |
| Oven Burner | Nat | 15,5000 BTU/HR |
| Lower | LP | 15,500 BTU/HR |
| | | |
| Broil | Nat | 15,500 BTU/HR |
| Burner | LP | 13,000 BTU/HR |

# INSTALLATION INSTRUCTIONS

**SUGGESTED LOCATION OF SERVICE PIPE - REAR WALL OR FLOOR**

**30" MODELS**

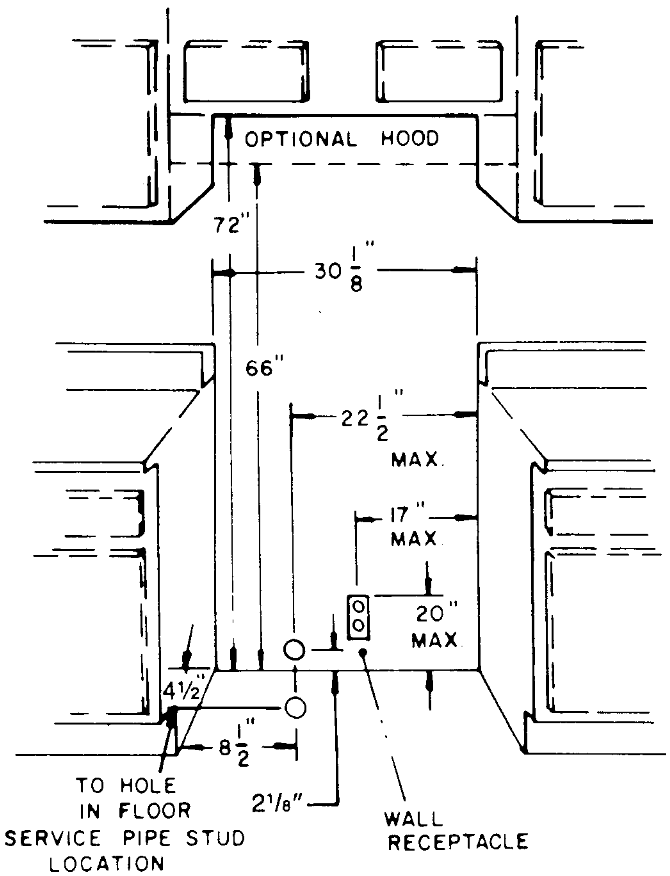



FIGURE 1

**UNIVERSAL MODELS (Nat or LP Gas)**

The regulator is factory adjusted for natural gas with a supply line pressure of not less than 6-inches water column pressure (W.C.P.). With the regulator adjusted for liquefied petroleum (LP) gas, the minimum supply pressure is 11 inches W.C.P. For conversion procedure to LP gas see the section on regulators and LP conversion procedures.

Cabinet Installation opening for gas slide-in range. See Page 10.

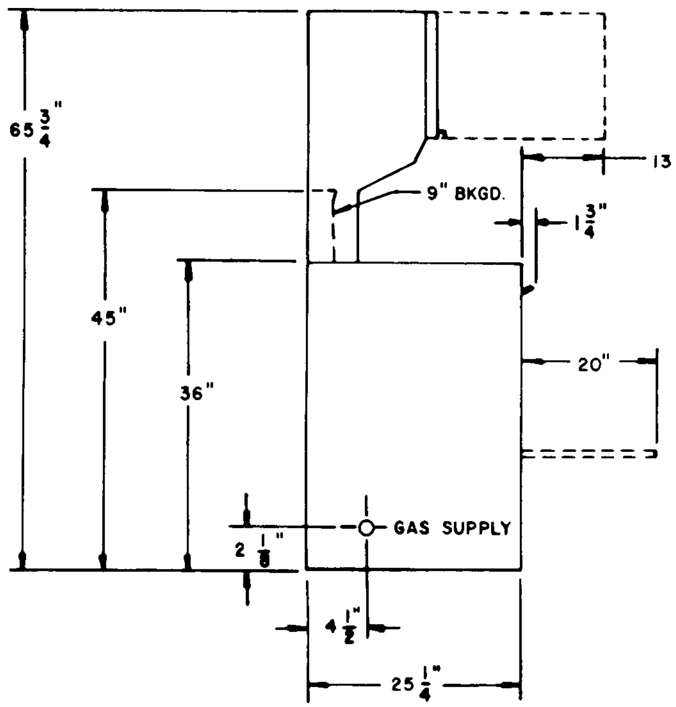
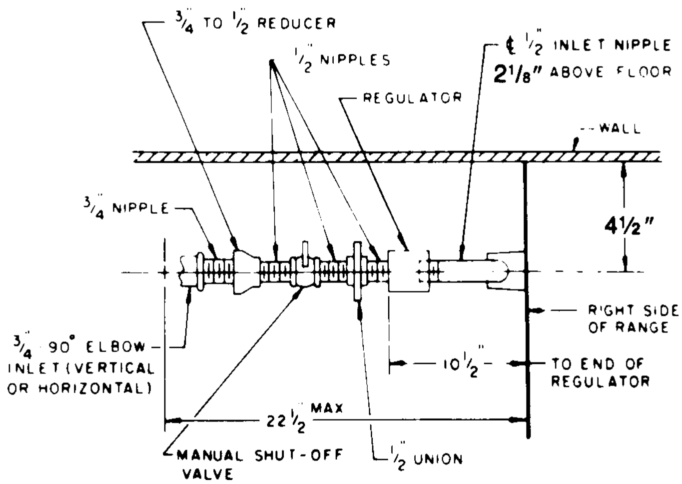



FIGURE 2

**WARNING**

**THE MAXIMUM GAS SUPPLY PRESSURE FOR THESE MODELS MUST NOT EXCEED 14-INCHES W.C.P.**



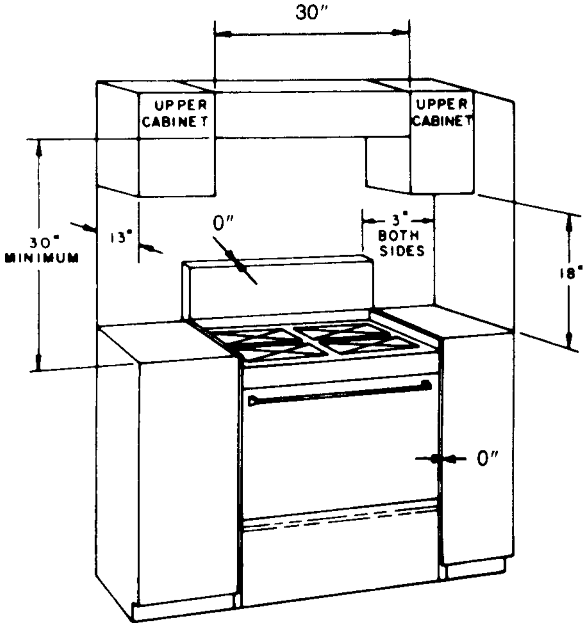

Top View
Figure 3

# INSTALLATION INSTRUCTIONS

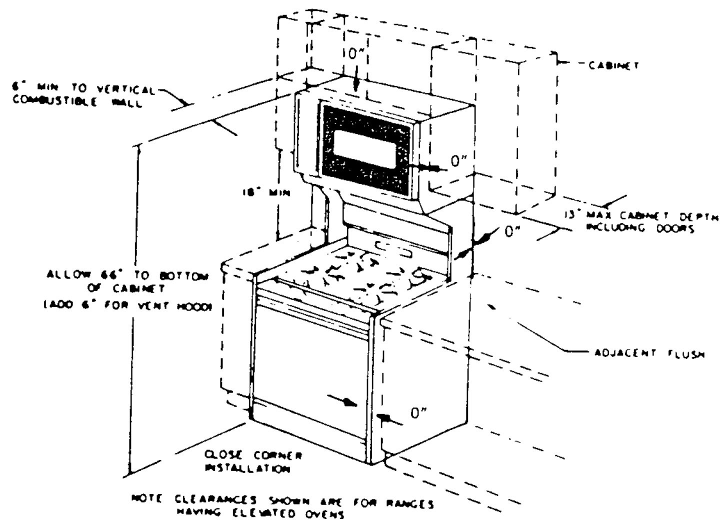
**INSTALLATION**

**Location**

The location of the range should be selected so proper illumination, freedom from drafts, and convenience to other appliances in the kitchen are obtained. Carefully level the range, using the leveling legs provided. The range must be level in order to assure uniform cooking and baking. A level or a large pan of water placed on an oven rack or on top of range can be used to level the unit. The range is to be installed flush to rear wall, and may be installed flush to side base cabinets. Spacing to vertical side wall above cooking surface 3" (as shown in Figure 2), 6" (as shown in Figure 3), for ranges with elevated ovens. Minimum distance to horizontal combustible surface above cooking surface is 30" and must be the width of the range. Maximum depth of cabinets installed above the range is 13".




Single Ovens
Figure 4




Ranges With Elevated Ovens
Figure 5

It is the responsibility of the installer to comply with the installation clearances specified on the rating plate attached to the appliance.

**NOTE:** Clearance specified to combustible construction (walls and materials) are based on a temperature rise of wood structures resulting from appliance operation. These clearances are suitable for walls of studding, lath and plaster, or other types of combustible materials which have a density of 20 pounds per cubic foot or more. No evaluation of the clearances required has been made for installations adjacent to low density cellulose, fiber board, and similar materials which have a density of less than 20 pounds per cubic foot; nor to plastic tiles, or sheeting.

**SECURE RANGE TO HOUSE STRUCTURE**

For safety consideration means have been provided for this range, except one having an elevated oven, to be secured to th house wall behind the range, METHOD 1# (see Figure 5A). If the wall behind the range is solid wood or a vertical stud is available, a wood screw or lag bolt of sufficient length may be employed to secure the range. If the wall behind the range is not solid such as paneling or dry wall (sheet rock) construction use of a Molly Bolt is required. The anchor portion of the Molly Bolt should be of sufficient lenght to hold it securely to the building material. The thicker the material, the longer the anchor portion must be.

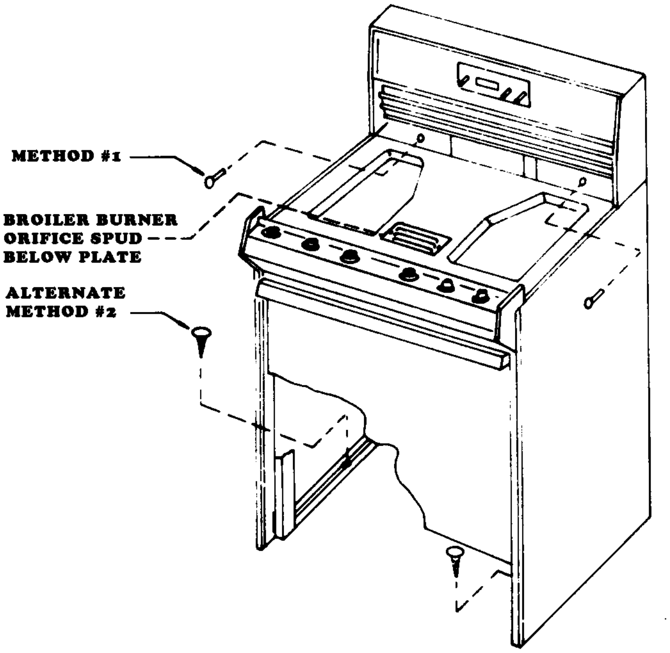



Figure 5A

**IN MOBILE HOMES:**

Any installtion in a mobile home must conform with the Manufactured Home Consutruction and Safety Standards. Title 24CFR, Part 32-80 (in Canada, CSA standard Z240,4-1) or when such standard is not applicable, with the local codes.

For mobile home installation it is necessary to use alternate METHOD #2 (see Figure 5A) to secure range to floor. See rating label to determine if range can be used in this application.

ANY OPENINGS IN THE WALL BEHIND THE RANGE OR THE FLOOR UNDER THE RANGE MUST BE SEALED.

**ELECTRICAL CONNECTIONS**

**WARNING**

**FOR GROUNDING - THIS APPLIANCE MUST BE ELECTRICALLY GROUNDED IN ACCORDANCE WITH LOCAL CODES, OR, IN THE ABSENCE OF LOCAL CODES, WITH THE NATIONAL ELECTRIC CODE, ANSI/ NFPA NO. 70-1990. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN ELECTRIC SHOCK, PERSONAL INJURY OR DEATH.**

The power cord on this appliance is equipped with a three-prong (grounding) plug which mates with standard three-prong (grounding) receptacles.

**Where a standard two-prong wall receptacle is encountered,** it is the personal responsibility and obligation of the customer to have it replaced with a properly grounded three-prong wall receptacle.

Where local codes permit, a **TEMPORARY CONNECTION** may be made to properly ground a two-prong wall receptacle by the use of an adaptor which is available at most local hardware stores.

An adaptor plug can temporarily be used (see Figure 4) preferably with polarized male blades. If an unpolarized adaptor plug must be used, determine which is the "hot" side and ground. Place an identifying mark on the adaptor to assure proper polarization in the future.

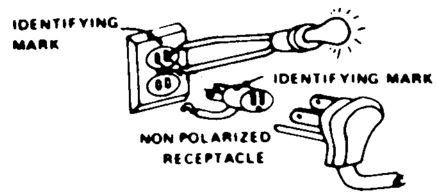



Figure 6

**CAUTION**

**ATTACHING THE ADAPTOR GROUND WIRE TO THE WALL RECEPTACLE COVER SCREW DOES NOT GROUND THE APPLIANCE UNLESS THE COVER SCREW IS GROUNDED THROUGH THE HOUSE WIRING.**

If there is any doubt as to whether the wall receptacle is properly grounded, the customer should have it checked by a qualified electrician.

**DO NOT, UNDER ANY CIRCUMSTANCES, CUT OR REMOVE THE THIRD (GROUND) PRONG FROM THE POWER PLUG.**

# INSTALLATION INSTRUCTIONS

**CONNECTING TO GAS SUPPLY LINE**

Access to connection is behind bottom storage drawer. The pressure regulator has a 1/2" female pipe thread. It is recommended that a 1/2" close nipple, a union and shut-off valve, be assembled into the regulator. This places the assembly for each connection to the gas supply and access to the shut-off valve as illustrated in Figure 1.

The gas supply pipe to the range should be 3/4" rigid pipe then reduced to 1/2" pipe at the pressure regulator. If a long run of fuel is required, a larger size pipe may be required. With the liquified petroleum (LP) gases, the size of the piping or tubing can be 1/2" minimum. LP gas suppliers usually determine the size and material used on the system. We do not recommend that flexible connectors be used in connecting our appliance to the gas supply, unless American Gas Association approved. Poorly designed connectors can be a source of gas leak. Even when AGA approved flexible connectors are used the customer should be cautioned against kinking or damaging the connector when moving the range for cleaning or any reason. This could cause a gas leak.

A shut-off valve should be installed in the line supplying gas to the range. Check local building codes and utility requirements. (See Figure 1 for details.)

A suitable pipe thread sealing material should be used, which is approved for use with LP gases.

Caloric ranges are designed for easy connection between the supply line and the inlet fitting. However, all strains must be removed from the supply and fuel lines so the range will be level and in line.

Use two (2) wrenches when connecting to the regulator.

**⚠ WARNING**

**FIRE OR EXPLOSION HAZARD - LEAK TEST COMPONENTS AFTER CONNECTION.**

THE REGULATOR IS DIE CAST AND WILL CRACK, RESULTING IN A GAS LEAKAGE AND POSSIBLE FIRE OR EXPLOSION, IF YOU MAKE THE CONNECTION TOO TIGHT.

The stack on the regulator must be in vertical position. **BE SURE** to use pipe dope to seal connections.

Be sure the shut-off valve is open between the inlet nipple and gas valve.

**TEST FOR GAS LEAKS**

After the final gas connection has been made, all the top burner valves should be closed and the gas supply turned on. All connections in the gas supply line and in the range should be tested with soap suds for any leaks. If a leak is present, bubbles will appear. The leak should be corrected by tightening the joint, or unscrewing it completely and applying additional dope. Any connections which may have been disturbed should be tested for leaks.

**⚠ WARNING** **FIRE OR EXPLOSION HAZARD**

**A LIGHTED MATCH OR FLAME SHOULD NEVER BE USED WHEN TESTING FOR LEAKS. ALL FITTINGS AND CONNECTIONS HAVE BEEN TIGHTENED AND TESTED AT THE FACTORY. IF A LEAK IS DETECTED, TIGHTEN THE FITTING, DO NOT USE PIPE DOPE ON FACTORY FITTINGS.**

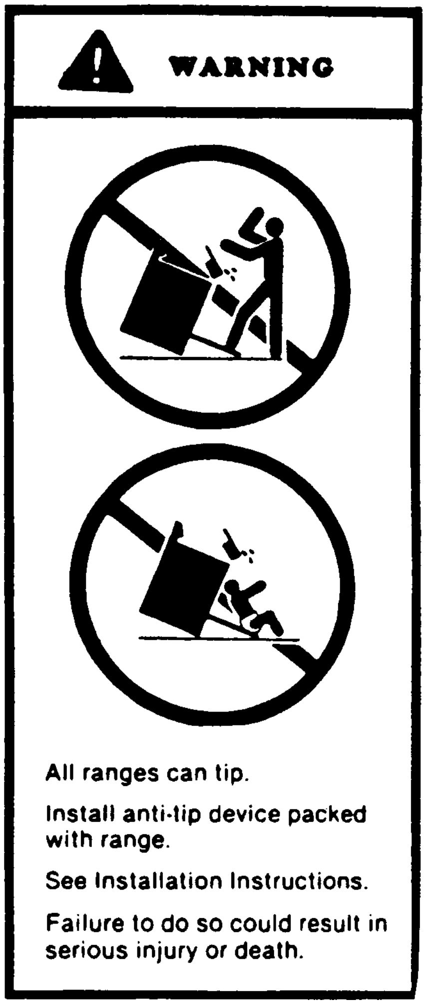
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Caloric ranges are designed for easy connection between the supply line and the inlet fitting. However, all strains must be removed from the supply and fuel lines so the range will be level and in line.

# INSTALLATION INSTRUCTIONS




**INSTALLATION INSTRUCTIONS FOR ANTI-TIP BRACKET**

**To Install Anti-Tip Bracket, Carefully Follow these Instructions:**

1. Prepare counter cutout per range Installation Instructions.
2. Measure the distance from the range leveling leg shaft to the rear most projection of the range. (See Figure A). This will be referred to as distance "A".

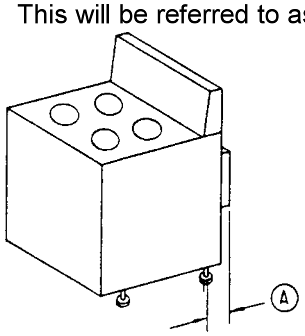



Figure 7

3. From the right rear edge of the prepared cutout, measure the distance "A" and mark a point. Repeat this procedure for the left hand side, then draw a straight line between these points. (See Figure A.)

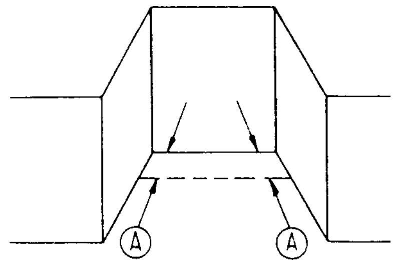
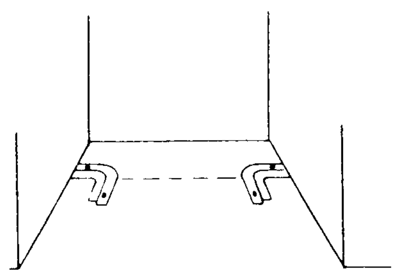
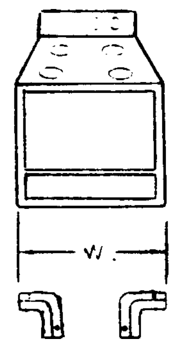



Figure 8

4. Place the bracket with the inside edge against the straight line and the end against the cabinet side. (See Figure C.) If you do not have cabinets on both sides of the range, it will be necessary to measure the width of the range (W) and place the bracket at the appropriate location. (See Figure D.) Mark two (2) hole locations.






5. If mounting into wood flooring, drill two (2) 3/32" holes as marked. If mounting into concrete, using a masonry drill bit, drill two (2) 3/16" holes and insert plastic anchors. Position bracket and mount using supplied screws.

6. Turn the leveling legs out approximately 1/4". The range may now be pushed into position. Remove the storage drawer and check that the leg has engaged the mounting bracket. If it has not, the bracket must be relocated to ensure engagement of the leveling leg into the bracket. If the range is moved from its original mounting location, the bracket must be removed and used for the new mounting location.

# INSTALLATION INSTRUCTIONS

**CABINET INSTALLATION OPENING FOR GAS SLIDE-IN RANGE**

A. Cabinet cutout must be prepared as shown in Figure 11. **Never install a range over kitchen carpeting.**

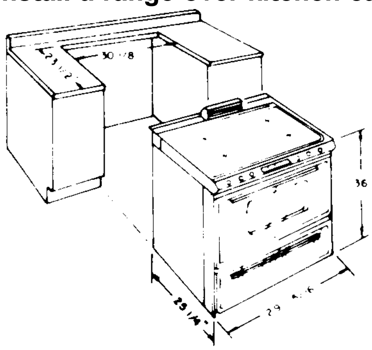


Figure 11

**LO BACK RAIL SLIDE-IN MODEL**

B. For electric and gas connection specifications refer to instructions for installing automatic pilotless ignition gas range.

C. On post formed (moulded) tops, shave the front corner of cabinet opening flush with countertop in area which will be underneath front corners of range top (3/8"). (See Figure 12.)

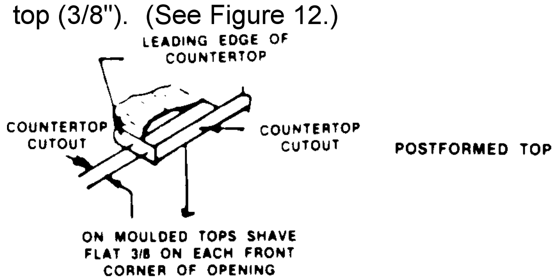
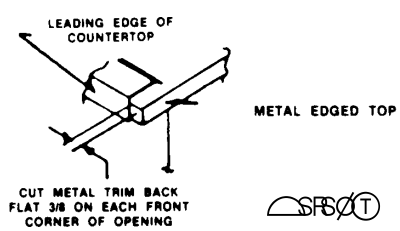



Figure 12

D. On countertops with front metal trim, cut metal trim back 3/8" from front corner of opening. (See Figure --.)




**ADJUSTMENTS AND LP CONVERSION**

**NATURAL GAS BURNER ADJUSTMENT**

**Models Without Sealed Top Burners**

1. Top Burners
   Whenever a top burner gas valve knob is depressed and turned fully counterclockwise, the electrode between the flash tubes will start sparking and continue as long as the knob is held in this position. After the burner ignites, move the knob to the "ON" position of the valve. At this time the sparking will cease. There are no standing pilots that have to be lighted or adjusted.

2. Top Burner Adjustment
   The air shutter (see Figure 5) should be adjusted to a proper flame. Loosen the air shutter lock screw and adjust the air shutter so the flame has an inner cone of bluish-green and an outer mantle of dark blue. The flame should be soft in character. Tighten the lock screw when the adjustment is complete.

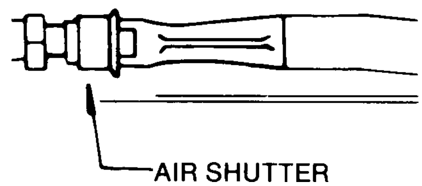



Figure 14

**NATURAL GAS BURNER ADJUSTMENT**

**Models with Sealed Top Burners (Below Serial Number F0430127550)**

1. Top Burners
   Whenever a top burner gas valve knob is depressed and turned fully counterclockwise, the electrode built into the burner cap will start sparking and continue as long as the knob is held in this position. After the burner lights, move the knob to the "HI" position of the valve. At this time the sparking will cease. There are no standing pilots that have to be lighted or adjusted.

2. Top Burner Adjustment
   No gas input adjustment is necessary as the burner is equipped with a fixed orifice. There is no shutter to adjust.

   Low burner flame may be adjusted by turning adjustment screw in center of valve stem. Normally, the low flame should be adjusted to the minimum steady blue flame. Check the adjustment by turning from high to low several times to see that the burner does not go out.

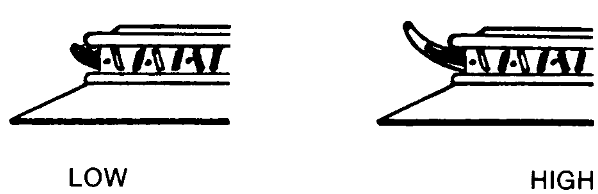



Figure 15
Top Burner Setting
OR

**Models with Sealed Top Burners (Above Serial Number F0430127550)**

The air shutters (see Figure 6) should be adjusted for a proper flame. Adjust the air shutter so that the flame has an inner cone of bluish-green and an outer mantle of dark blue. The flame should be soft in character. To adjust the air shutter to close the opening to decrease the air or enlarge the opening for more air. Tighten the lock screw when the adjustment is complete.

Low burner flame may be adjusted by turning adjustment screw in center of valve stem. Normally, the low flame should be adjusted to the minimum steady blue flame (approximately 1/4" flame length). Check the adjustment by turning from high to low several times to see that the burner does not go out.

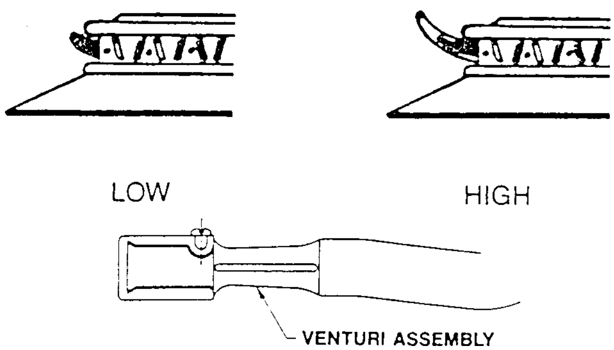



Figure 16

**Models with Cast Top Burners**

The air shutters (See Figure 7) should be adjusted for a proper flame. Adjust the air shutter so the flame has an inner cone of bluish-green and an outer mantle of dark blue.

**For Access to the Air Shutters:**
Lift off four (4) burner caps. Remove one (1) screw at each burner body. Pull each burner body upwards and disconnect the ignition wire at the electrode. Remove one (1) flat headed screw at each burner and lift off main top. Remove plenum box covers (when so equipped).

**To Adjust the Air Shutter:**
Loosen the lock screw. Move the air shutter to close the opening to decrease the air or enlarge the opening for more air. Tighten the lock screw when the adjustment is complete.

Low burner flame may be adjusted by turning adjustment screw in center of valve stem. Normally, the low flame should be adjusted to the minimum steady blue flame (approximately 1/4" flame length). Check the adjustment by turning from high to low several times to see that the burner does not go out. (See Figure 8.)

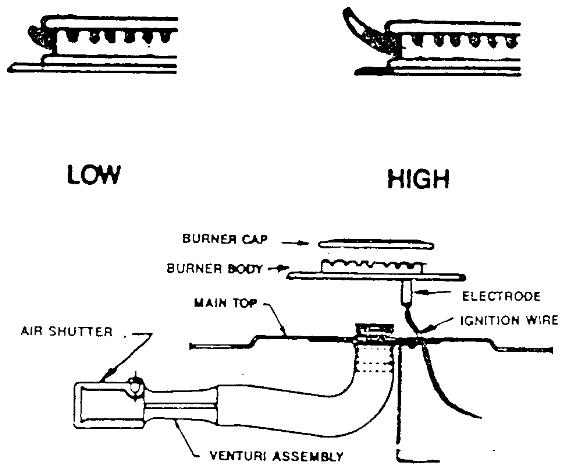



Figure 17

**LOWER OVEN BURNER - RST**

The appearance of properly adjusted oven burner flame is a bluish-green inner cone and a dark blue mantle. The flame characteristics should be clean and soft with no yellow tips. Blowing or lifting of the flame should not occur.

1. An electric ignitor is used to light the burner. **DO NOT** attempt to insert any object into the opening of the protective shield surrounding the ignitor coil. Do not attempt to clean this area.

2. The burner flame should be 1/2" long when the air shutter is correctly adjusted. (See Figure 8.) The air shutter is located at the lower right of the access area, above the gas valve. To adjust the air shutter, loosen the lock screw. Move the air shutter to close the opening to decrease the air or enlarge the opening for more air. Tighten the lock screw when the adjustment is complete.

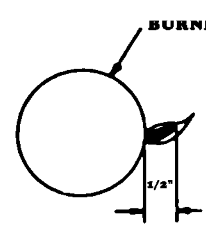



Figure 18

**UPPER OVEN BURNER ADJUSTMENT - RST**

The burner flames should be 3/8" long when the air shutter is correctly adjusted. The air shutter is located at the left side of the upper oven burner. To adjust the air shutter, loosen the lock screw. Move the air shutter to close the opening to decrease the air or enlarge the opening to increase the air. Tighten the lock screw when the adjustment is complete.

# INSTALLATION INSTRUCTIONS

## BROIL BURNER

### Burner Adjustment

1. No gas input adjustment is necessary as the infrared burner is equipped with a fixed orifice. There is no air shutter to adjust.

2. An electric ignitor is used to light the burner. **DO NOT** attempt to insert any object into the openings of the protective shield surrounding the ignitor coil. Do not attempt to clean this area.

3. The burner may have a hazy or fuzzy appearance when in operation. This haze may be 3/8" thick maximum and is normal for this type of burner.

## UPPER OVEN FLAME CHARACTERISTIC ADJUSTMENT

The appearance of a properly adjusted gas flame is one having an inner cone of bluish-green and an outer mantle of dark blue. The length of the inner cone flame will be about 3/8" when correctly adjusted. (See Figure 9.) Flame characteristics should be clean but soft.

1. An electric ignitor is used to light the burner. **DO NOT** attempt to insert any object into the openings of the protective shield surrounding the ignitor coil. Do not attempt to clean this area.

2. Oven Burner Adjustment
   The burner flame should be 3/8" long when the air shutter is correctly adjusted. (See Figure 9).

The air shutter is located at the left side of the upper oven burner. To adjust the air shutter loosen the lock screw. Move the air shutter to close the opening to decrease the air or enlarge the opening to increase the air. Tighten the lock screw when the adjustment is complete.

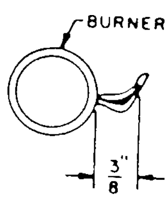



Figure 19

## LP CONVERSION

## NATURAL TO LP GAS CONVERSION

**WARNING** FIRE OR EXPLOSIION HAZARD

**THIS UNIVERSAL RANGE IS PREADJUSTED FOR OPERATION ON "NATURAL" GAS AS SHIPPED FROM THE FACTORY. TO USE THE APPLIANCE ON LP GAS, YOU MUST DO THE FOLLOWING:**

## PRESSURE REGULATOR (On Range)

Remove the cap marked "Nat" and reverse it to read "LP". Be sure not to disturb or remove the spring beneath the cap. Also make sure the fiber washer is between the cap and the body of the regulator. See Figure 10 for the correction position of the cap.

Remove the cap with the screwdriver slot and replace upside down. This plug will then have the marking "LPG10". Be sure not to disturb or remove the spring beneath this plug. See Figure 11 for correct position of plug.

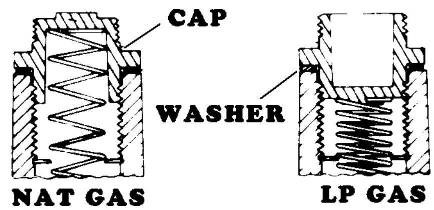



Figure 20

OR

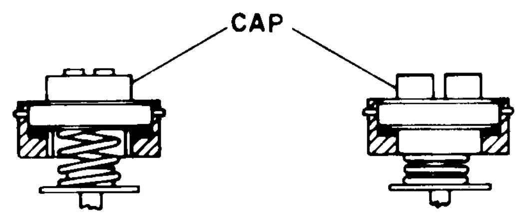



Figure 21

OR

Remove the cap with the screwdriver slot. Remove the black insert marked "Nat" from the cap. (This is a tight fit in the cap.) Reverse this insert and carefully push it firmly into the hole in the cap. The marking "LP" will now be showing on the insert. Be sure the insert is pressed into the shoulder. Also, be sure not to disturb the spring in the body of the regulator.

Replace the cap in the body of the regulator and tighten. See Figure 12 for the correct position of the insert.

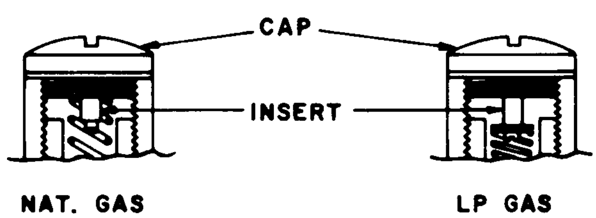



Figure 22

Remove the cap with screwdriver slot. Carefully remove the spring and washer (washer will be at bottom of spring). Reverse so that washer is at top of spring and reinstall spring and washer.

# INSTALLATION INSTRUCTIONS

Remove the cap in the body of the regulator, over the washer and spring, and tighten cap. See Figure 13 for the correct position of the washer and spring.

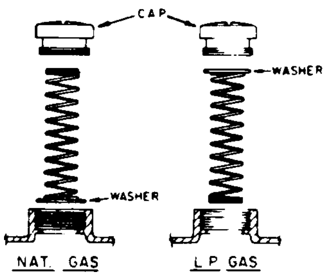



Figure 23

OR

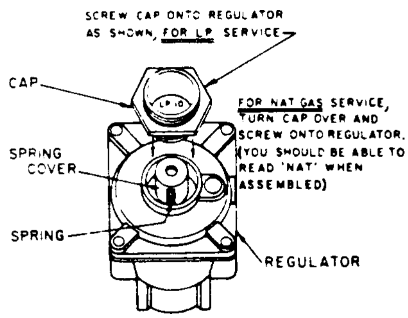



Figure 24

**MODELS WITHOUT SEALED TOP BURNERS**

**TOP BURNER ADJUSTMENT**

**ORIFICES**

Remove four (4) top burners by removing the mounting screws and lifting out of bracket. Then turn down the orifice hoods onto the pins being careful not to drive pin into the valve or to distort the hole through the center of the pin. Reinstall the top burners and mounting screws. (See Figure 15.)

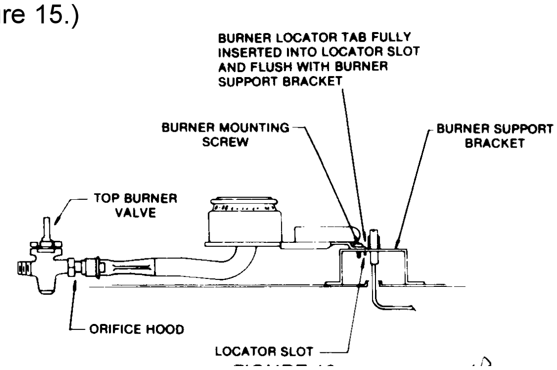



FIGURE 25

**FLAME APPEARANCE**

The air shutter (see Figure 17) should be adjusted for a proper flame. Adjust the shutter so the flame has an inner cone of bluish-green and an outer mantle of dark blue. The flame should be soft in character.

**NOTE:** On LP gas a slight yellow tip will be visible on top burner flames, but will not affect burner performance.

**MODELS WITH SEALED TOP BURNERS**

**NOTE:** Sealed Top Burner Models with Serial Number Date Codes F006 through F009 are for use on Natural Gas only and are not field convertible for use on LP gas.

**TOP BURNER ADJUSTMENT (Below Serial Number F0430127550)**

**ORIFICES**
Universal Models (Natural or LP) are shipped from the factory orificed for Natural Gas. IF THEY ARE TO BE USED ON LP GAS, the burner orifice spuds must be changed. They will be found wired to the inlet pipe behind the storage drawer. The proper orifice for use on Bottled (LP) Gas is red colored and stamped #68 (drill size). BE SURE to use proper burner spud for the gas in use. Rewire the Natural Gas orifice spuds to the inlet pipe for future conversion.

| | **Nat. Gas** | **LP Gas** |
|---|---|---|
| Burner Spud | 54 | 68 (Red colored for identification) |

**TO CONVERT**
Remove four (4) top burners by pulling upwards. (See Figure 26.) Remove the two (2) flat headed screws at each burner and lift off main top. Replace the burner orifice spuds using a 5/16" nut driver. Reinstall maintop and burners. To replace the burners, position the ignitor over the hole at the rear of each burner opening and push the burner down onto the burner base until the skirt contacts the maintop.

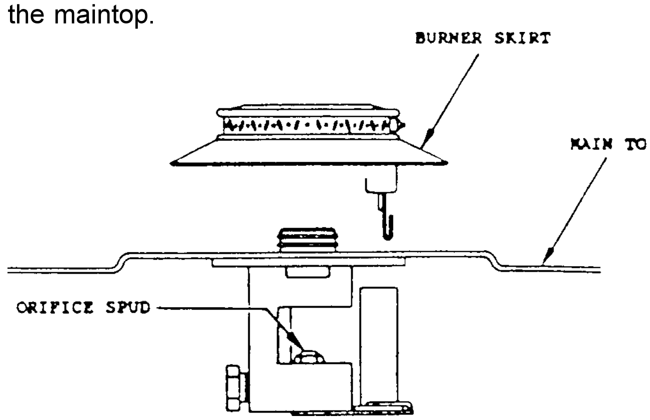



Figure 26

# INSTALLATION INSTRUCTIONS

**BURNER ADJUSTMENT**
No gas input adjustment is necessary as the burner are equipped with fixed orifices. There are no shutters to adjust. **NOTE:** On LP gas a slight yellow tip will be visible on top burner flames, but will not affect burner performance.

OR

**TOP BURNER ADJUSTMENT (Above Serial Number F0430127550)**

**TO CONVERT**
Lift off four (4) burner caps. (See Figure 27.) Remove one (1) screw at each burner body. Pull each burner body upwards and disconnect the ignition wire at the electrode. Mark wires for identification on reassembly. Remove one (1) flat headed screw at each burner and lift off main top.

Remove plenum box covers (when equipped). Remove two (2) screws from each venturi mounting bracket and remove venturi assemblies.

Turn the orifice hoods onto the pins. The orifices should be turned snug onto the pins careful not to drive pin into the valve or distort the hole through the center of the pin. Reinstall the burner bodies and caps.

The air shutters should be adjusted for a proper flame. Adjust the air shutter so that the flame has an inner cone of bluish-green and an outer mantle of dark blue. The flame should be soft in character. To adjust the air shutter, loosen the lock screw. Move the air shutter to close the opening to decrease the air or enlarge the opening for more air. Tighten the lock screw when the adjustment is complete. Reinstall the plenum box covers, main top and main top burners in reverse order of removal. **NOTE: On LP gas a slight yellow tip will be visible on top burner flames, but will not affect burner performance.**

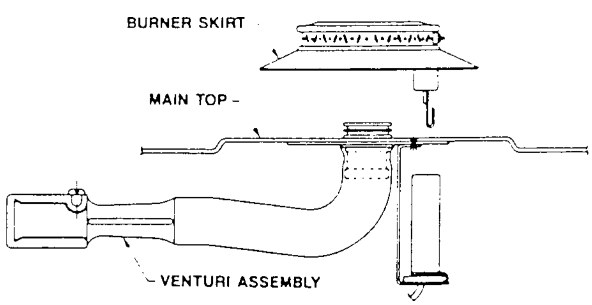



Figure 27

**MODELS WITH CAST BURNERS**

**TO CONVERT**
Lift off four (4) burner caps. (See Figure 28.) Remove one (1) screw at each burner body. Pull each burner body upwards and disconnect the ignition wire at the electrode. Remove one (1) flat headed screw at each burner and lift off main top.
Remove plenum box covers. Remove two (2) screws from each venturi mounting bracket and remove venturi assemblies.

Turn the orifice hoods onto the pins. The orifice should be turned snug onto the pins careful not to drive pin into the valve or distort the hole through the center of the pin. Reinstall the burner bodies and caps.

The air shutters should be adjusted for a proper flame. Adjust the air shutter so that the flame has an inner cone of bluish-green and an outer mantle of dark blue. The flame should be soft in character. To adjust the air shutter, loosen the lock screw. Move the air shutter to close the opening to decrease the air or enlarge the opening for more air. Tighten the lock screw when the adjustment is complete. Reinstall the plenum box covers, main top and main top burners in reverse order of removal. **NOTE: On LP gas a slight yellow tip will be visible on top burner flames, but will not affect burner performance.**

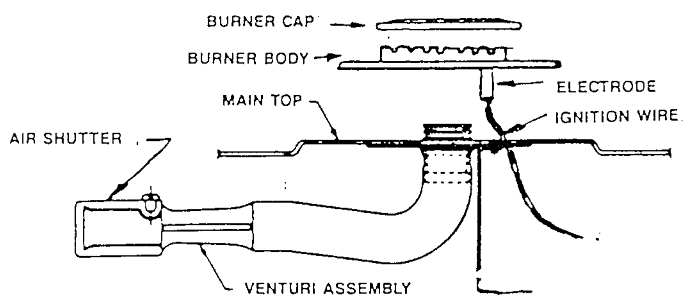



Figure 28

**OVEN BURNER (Upper and Lower Oven) (RST)**

**ORIFICES**
Turn down the orifice hood onto the pin. The orifice should be turned snug onto the pin being careful not to drive pin into the valve or to distort the hole through the center of the pin.

**LOWER OVEN FLAME CHARACTERISTIC ADJUSTMENT**
The appearance of a properly adjusted oven burner flame is a bluish-green inner cone and a dark blue mantle. The flame characteristics should be clean and soft with no yellow tips. Blowing or lifting of the flame should not occur. The burner flame should be 1/2" long when the air shutter is correctly adjusted. (See Figure 18.)

An electric ignitor is used to light the burner. **DO NOT** attempt to insert any object into the openings of the protective shield surrounding the ignitor coil. Do not attempt to clean this area.

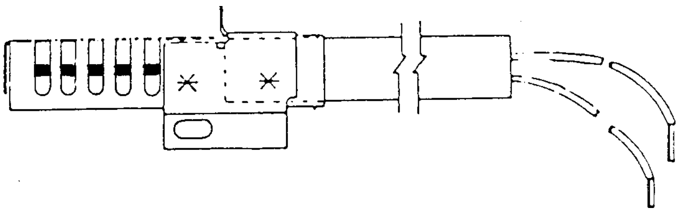


Figure 29

The air shutter is located in the lower access area. To adjust the air shutter, loosen the lock screw. Move the air shutter to close the opening to decrease the air or enlarge the opening for more air. Tighten the lock screw when the adjustment is complete.

**OVEN BURNER (RSS)**

1. Orifices
   Turn down the orifice hood onto the pin. The orifice should be turned snug onto the pin being careful not to drive pin into the valve or to distort the hole through the center of the pin.

2. Low Oven Flame Characteristic Adjustment

   a. The appearance of a properly adjusted oven burner flame is a bluish-green inner cone and a dark blue mantle. The flame characteristics should be clean and soft with no yellow tips. Blowing or lifting of the flame should not occur. The burner flame should be 1/2" long when the air shutter is correctly adjusted.

   b. An electric ignitor is used to light the burner. DO NOT attempt to insert any object into the openings of the protective shield surrounding the ignitor. Do not attempt to clean this area.

   c. The air shutter is located in the lower accessed area. To adjust the air shutter, loosen the lock screw. Move the air shutter to close the opening to decrease the air shutter to close the opening to decrease the air or enlarge the opening for more air. Tighten the lock screw when the adjustment is complete.

**ULTRA-RAY® BROILER BURNER**

An electric ignitor is used to light the burner. **DO NOT** attempt to insert any object into the openings of the protective shield surrounding the ignitor element. Do not attempt to clean this area.

**MODELS WITHOUT SEALED TOP BURNERS**

Universal models (Nat or LP) are shipped from the factory orifices for Nat gas. IF THEY ARE TO BE USED ON LP GAS, the burner orifice spud must be changed. This will be found under the plate in the center of the burner box. **BE SURE** to use the proper burner spud for the gas in use. Reinsert Nat. Gas orifice in burner box with louvers facing to rear of unit.

| | Nat. Gas | LP Gas |
|---|---|---|
| Burner Spud | 50 | 58 (Silver colored for identification) |

**MODELS WITH SEALED TOP BURNERS**

Universal models (Nat. or LP) are shipped from the factory orificed for Nat. Gas. IF THEY ARE TO BE USED ON LP GAS, the burner orifice spud must be changed. This will be found wired to the inlet pipe behind the storage drawer. The proper orifice for use on Bottled (LP) gas is silver colored (Nickel plated) and stamped #58 (drill size). **BE SURE** to use the proper burner spud for the gas in use. Rewire the Natural Gas orifice spuds to the inlet pipe for future conversion.

**TO CONVERT**

Remove oven door and storage drawer. Shut off valve on gas line that runs from the pressure regulator to the gas valve.

Remove the two (2) screws fastening the broiler burner to the oven tank at front of burner. Remove the burner by pulling front end down to expose the burner orifice spud in the rear wall. Be careful not to break the ignitor. Lay the burner aside carefully with the screen side up. Replace the burner orifice spud using a 5/16" nut driver. Reverse the procedure to reinstall the burner.

**BURNER ADJUSTMENT**

No gas input adjustment is necessary as the infrared burner is equipped with a fixed orifice. There is no shutter to adjust.

The burner may have a hazy or fuzzy appearance when in operation. This haze may be 3/8" thick, maximum and is normal for this type of burner.

**RANGE FEATURE CHECKOUT**

Check all range features, including lights, clocks, etc. for proper operation.

### CHECKOUT PROCEDURE OF CLEAN CYCLE OPERATION - RSS (WITH MECHANICAL TIMER; FOR OTHER MODELS FOLLOW TIMER INSTRUCTIONS)

REMOVE OVEN RACKS, BROILER PAN AND GRID.

A. Set the range clock to the correct time of day. (If not set properly).
B. Push the turn the start dial on the backguard to the approximate time of day until set stem pops out.

C. To establish length of clean time, turn the stop dial 1 1/2 hours to 2 hours ahead of start time. On electronic clock models push clean button on timer for 3-hour clean time.

D. Close and latch oven door, moving the latch arm to the far right. (clean position).

E. Turn the oven heat control, on control panel, clockwise to "CLEAN" position. Then, turn selector switch to the "CLEAN" setting.

F. A 15-20 second delay should occur, and the oven indicator light should then come on.

G. After the cycle begins, the oven should reach a temperature in excess of normal broiling (approximately 700°). The "CLEAN" indicator light should come on, and the terminal lock system should lock and secure the oven door.

H. Turn selector switch from "CLEAN" to "OFF" and heat control to "OFF".

I. When oven temperature has lowered to approximately 700° or less, the lock system should unlock the oven door allowing the latch handle to move freely.

### DEFECTS

Any defects or faulty or damaged parts must be reported immediately and steps taken to correct them through normal dealer service channels.

### POWER FAILURE

In the event of a power failure, safe manual lighting of the top burners is possible. To do this, hold a lighted match at the desired burner head (the part projecting above the main top), turn the top burner control knob to the light position.

The flame height can now be adjusted to the desired size. The broil and oven burners cannot be operated during a power failure and no attempt should be made to do so.

### MAINTENANCE INSTRUCTIONS

1. Keep appliance clear and free from combustible materials, gasoline, cleaning fluids, and other flammable vapors and liquids.

2. Gas burners need sufficient air to operate. Objects should not be placed in front of or on maintop rear of range while in use. This could obstruct the air flow needed for combustion and vent for flue products.

### BURNER CLEANING -

The burner heads are made of aluminum and should not be subjected to scouring or abrasive pads. Never not be subjected to scouring or abrasive pads. Never use steel wool or oven cleaners on the burner heads or they will dull and not regain their original luster.

To clean the burners, remove the burner grates and push the main top towards the rear of the range until the front tabs are free. Then raise the main top and remove or engage the main top support. This will support the main top while the burners are removed for cleaning.

Before attempting to remove the burners, be certain the four (4) burner mounting screws which retain the burners to the burner supports are removed. If the screws are still secured, they can be removed with a Phillips screwdriver.

To remove the burners, release the burner head brackets from the burner support, lift up and pull towards the rear of the range.

To replace the burners slip the Venturi (long, thin end) over the burner orifice and then position the burner locating brackets into the burner support channel. Reinstall the burner mounting screws.

Wiping the burners following each use will remove spillover deposits and grease spatters before these soils get a chance to harden on the surface. Burnt soil can be cleaned by soaking the burners in warm water and a dishwashing liquid detergent such as "Dove" or "Lux". A dishcloth or nonabrasive pad (such as Dobie pad) should be used to rub the burner caps after the soaking period. Be sure the burners are dry, as water lodged in the burner parts might cause an uneven flame or interfere with automatic lighting.

If stains still remain after soaking, you can soak any heavily soiled burners in a solution of two tablespoons of "Dip-it" per quart of water. Use a large pan and enough water so the cap and base part of the burner assembly can be completely immersed; bring water to a boil, remove vessel from burner, and add measured amount of "Dip-it". Immerse the burner in the hot solution and soak for 20

minutes, no longer. Be sure the liquid completely covers the cap and base portion of the assembly. After 20 minutes, remove burner, cool slightly and rinse thoroughly with cold water. Be sure hands are protected to prevent burns from hot water. Be sure all the solution is completely rinsed off both the inside and outside of the burner. If some stains still remain, rub with a "Dobie" pad.

The burner may then be left to dry at room temperature or be placed in the oven at 170° for 1/2 hour. **BE SURE TO PROTECT YOUR HANDS WHEN REMOVING DRIED BURNERS FORM THE OVEN.**

**UNIVERSAL GAS ORIFICES**

With the exception of the Broiler Burner and Sealed Top Burner, orifices for these models are of the coaxial type. They contain a double coaxial orifice hood and universal pin. The hood orifice is sized for Natural Gas (6 inches water column pressure). The pin orifice is sized for LP Gas (11 inches water column pressure).

The orifice is adjusted for Natural gas as shipped from the factory. It must be adjusted for use on LP gas. This requires that the orifice hood be screwed or turned down approximately two (2) turns onto the pin. The hood should be turned down snug but not tight to the point where it damages or distorts the pin. (See Figure 19.)

When set up for Natural Gas, gas flows around the pin and through the orifice of the hood which is sized for Natural Gas. When the hood is screwed down for LP gas, the gas flow is only through the hollow pin which is sized for LP gas.

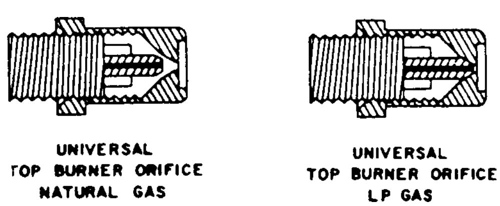


Figure 30 - Universal Orifice

**OVEN THERMOSTAT KNOB ADJUSTMENT**

**Models without electronic Range Control (ERC)**

Cooking recipes are written to take into consideration that oven thermostats have manufacturing tolerances, and may not provide an average temperature exactly on the thermostat setting. If the temperature average reading is beyond the ±25° tolerance range, a limited adjustment can be made with the adjustable skirt on the knob. The adjusting screw on the thermostat is sealed and no adjustment can or should be attempted. The rear of the adjustable skirt shown here is self-explanatory.

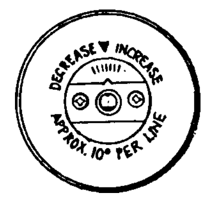


Figure 31

**NOTE:** These thermostats (Robertshaw) have a cement coating over the adjusting screw. Evidence of attempts to adjust these thermostat nullifies the warranty.

**For Thermostat Calibration on models with the Electronic Range Control (ERC), see section on ERC Operating and Testing Procedures.**

When making any temperature adjustments, a reliable test instrument should be used to accurately determine the oven temperature.

A reliable test instrument of the thermocouple type is preferred which will allow temperature readings with the door closed.

Position the thermocouple clip of the test instrument on the center of the oven rack that is positioned in the center of the oven cavity. The thermocouple of the test instrument should be "weighted" or "loaded" in order to represent more closely the average cooking temperature of the oven versus the on-off cycling of the thermostat with the full rate gas valve. The procedure for loading a thermocouple is illustrated in Figure 20.

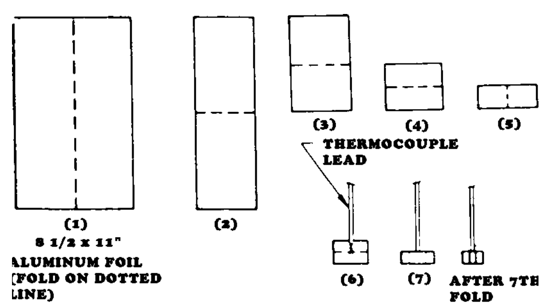


Figure 32 - "Loading" A Thermocouple

An 8 1/2 x 11-inch piece of aluminum foil should be folded five (5) times, doubling the thickness with each fold. After the fifth fold, place the thermocouple in the center of the aluminum piece as shown and fold once more. Finally, fold the sides so the foil clings to the thermocouple. The loaded thermocouple will then provide temperature readings on the thermometer that more closely resemble the mean or average temperature of the oven as it cycles on and off above and below the temperature setting.

With all the controls properly set for "Bake", turn the oven thermostat to 350°.

After the oven has cycled for 25 to 30 minutes, note the temperature that the oven cycles ON and OFF. For example, at 350° setting the oven cycles between 335° and 355°. This provides a mean or average temperature of 345°F., well within the ±25°F specification.

**GAS PRESSURE**

Correct ignition and operation of the burners are dependent upon adequate gas pressure. The regulator is designed to provide pressure of approximately six (6) inches water column pressure (WCP) for natural gas and approximately eleven (11) inches for WCP for liquid propane (LP) gas, provided the universal type gas regulator and gas valves have been correctly set up for the type gas employed.

These pressures therefore require that the minimum supply pressure to the regulator must be at least six (6) inches WCP for natural gas and eleven (11) inches WCP for LP gas, with maximum pressure not to exceed fourteen (14) inches WCP.

**MEASURING GAS PRESSURE**

Equipment for measurement of gas pressure varies from pressure meters and gauges to the relatively simply and most commonly used manometer. If it is used, follow the directions supplied with the unit. The following informations covers the use of a manometer.

A manometer is simply a U-shaped tube of clear plastic or glass (see illustration). A scale in inches is located between the two (2) legs of the "U". In use, the tube is filled with sufficient water to achieve a level at "0" inches. One end of the tube is connected to the range manifold or gas valve orifice while the other end of the tube or leg is open. When gas pressure is applied, the water on the gas side of the tube is pushed down and the water in the other leg rises up against the atmospheric pressure on the open end. The sum of the readings below the zero level and above the level will provide the gas pressure in inches water column, or the water column height which the gas pressure will support against the atmospheric pressure on top of the water column. The manometer therefore indicates gas pressure in inches water column. This conforms with the gas specifications for gas appliances which are given as inches WCP or inches water column pressure.

**USING THE MANOMETER**

The usual procedure for taking the pressure reading is to connect the tubing to one of the gas valve orifice hoods and turn on the valve. A full load reading should be taken by turning on all of the top burners and the oven burner to assure that the pressure under a full load is adequate. Figure 33 shows four (4) inches water column pressure (WCP), two (2) inches above and two (2) inches below the zero level.

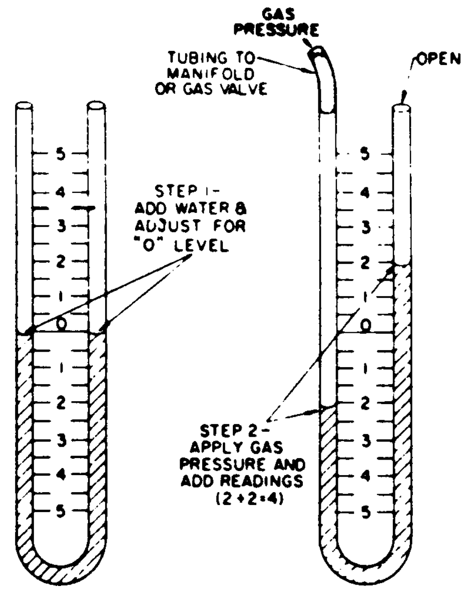



Figure 33 - The Mannometer

# SAFE OPERATING PROCEDURES

**⚠ CAUTION**

**SAFETY PRECAUTIONS READ BEFORE OPERATING THE RANGE.**

Accidents are always tragic, especially because so many of them could have been prevented with a little care and judgement. Here are some basic good practices to follow for safe use of the gas range.

1. Be sure the range is installed by a qualified technician and is properly grounded.

2. Never use the range for warming or heating the room. This warning is based on safety considerations.

3. Wear proper apparel - loose fitting or hanging garments should never be worn when operating the range.

4. Do not repair or replace any part unless specifically recommended in the manual. All other servicing should be referred to a qualified service technician.

5. Flammable materials should not be stored near the range.

6. Do not use water on grease fires. Smother fire or flame or use dry chemical (such as baking soda) or foam type extinguisher.

7. Use only dry potholders. Moist or damp potholders on hot surfaces may result in burns from steam. Do not use a towel or other bulky cloth.

8. Children should not be left alone or unattended in area when the range is in use. They should never be allowed to sit or stand on any part of the range.

9. Select utensils large enough to properly contain food and avoid boil-overs or spillovers. This will both save cleaning and prevent hazardous accumulations of food, since heavy splattering or spillovers left on a range can ignite. Pan size is especially important in deep-fat frying.

10. TYPE OF UTENSILS - Avoid pans that are unstable and easily tipped. In choosing pans, look for easily grasped handles that will stay cool. Pans that are too heavy when filled with food can also be a hazard. If pan handles twist and cannot be tightened, discard the pan.

11. HANDLES - Always turn pan handles to the side or back of the range - not out into the room where they are easily hit. UTENSIL HANDLES SHOULD BE TURNED INWARD AND NOT EXTEND OVER ADJACENT SURFACE BURNERS to minimize burns, ignition of flammable materials, and spillage due to unintentional contact with the utensil.

12. Never leave range burners at high heat settings. Boil-over causes smoking and greasy spillovers that may ignite.

13. Clean range with caution. If a wet sponge or cloth is used to wipe spills on a hot cooking area, be careful to avoid steam burns. Some cleansers can produce noxious fumes if applied to hot surfaces.

14. Do not touch surface area near burner units and burner caps. During and after use, these areas may be hot enough to cause burns. Avoid contact with these areas by clothing or other flammable materials until they have had sufficient time to cool.

15. Do not heat unopened food containers - build-up of pressure may cause container to burst and result in injury.

**⚠ CAUTION**

**16. Do not store items of interest to children in cabinets above the range. Children climbing on the range to reach items could be seriously injured.**

17. GREASE - Grease is flammable and should be handled carefully. Never leave any cooking operation unattended. Let fat cool before attempting to handle it. Wipe spillovers immediately.

18. Burner flame should be adjusted so that they do not extend beyond the edge of the utensil. This warning is based on safety considerations.

19. Never sit, step, or stand on any part of the range or injury may result.

# SAFE OPERATING PROCEDURES

**OPERATING INSTRUCTIONS**

**SAFETY TIPS**

**⚠ CAUTION**

Some "common sense" rules to remember:

- Always be certain that the oven parts are cool before touching them when hands are not protected by a potholder.
- Always use a dry potholder, never a moist one, nor a trailing cloth, to avoid possible burns from steam.
- Pulling out oven racks is a convenience when lifting heavy foods, but caution should be used against possible burns from touching hot surface.
- For your safety, never use the range as a space heater.
- Do not heat unopened containers such as jars, cans, etc., in the oven. The build-up of pressure may cause the container to burst and can cause serious personal harm or damage the range.
- Do not use aluminum foil on the racks or oven bottom. This will hinder heat circulation.
- Do not use aluminum foil on the racks or oven bottom when cleaning. The self-cleaning feature makes this unnecessary.
- Do not attempt to clean the oven or broiler burner ignitor assembly. The ignitors are electrically operated and the danger of electric shock is present.
- Do not place baking utensils directly on the oven bottom.
- Do not use disposable or substitute broiler pans. The broiler pan and grid provided with the range have been scientifically designed to keep drippings cool so they will not become hot enough to ignite.
- Always remove the broiler pan and grid from the oven when baking and roasting. A possible fire hazard could exist if a soiled pan and grid are left in the oven. Also, any drippings on the grid will become baked on and will be very difficult to remove.
- Never cover the broiler grid with aluminum foil. It may trap grease and cause it to smoke. If desired, place a sheet of aluminum foil to line the broiler pan underneath the broiler grid to ease clean up. (A cup of water placed in the broiler pan will also minimize clean up.)
- Never use the range as storage space.
- Never store flammable items in the storage drawer.

**BROILING**

**The Ultra-Ray® Broiler**

To use the Ultra-Ray® broiler, set the selector dial to "Manual" and the temperature control dial to "Broil" (since all broiling is done with a fast, searing heat, no temperature selection is used except with certain recipes). The burner lights automatically in 50 - 60 seconds. During the broil cycle the burner will cycle on and off. For programming information on models with the Electronic Range Control, see Section III, Operation and Troubleshooting, ERC Control.

Things to Remember:

CLOSE THE DOOR COMPLETELY FOR ALL BROILING.

Ultra-Ray® consumes most smoke and spatter. Kitchen stays cleaner, cooler.

DO NOT PRE-HEAT THE BROILER BEFORE USING.

**BAKING**

For best results preheat the oven first. Turn the selector dial to "Manual" and the thermostat dial to the desired temperature. The oven will light automatically. Allow the oven to heat to temperature, approximately fifteen (15) minutes. For programming information on models with the Electronic Range Control, see Section III, Operation and Troubleshooting, ERC Control.

The range is equipped with tilt proof oven racks with automatic stops. The oven racks are removable and can be inserted at various levels. They can be pulled to the "STOP" position without danger of tipping. To remove the racks, pull to the stop position, raise the forward edge, and lift. Reverse the procedure to install racks. One or both oven racks can be used during baking.

Always keep in mind that heated air in the oven must be allowed to circulate freely. Leave at least 1 1/2" between utensils and between utensils and the oven walls. For example, never place one cake layer directly over another - stagger them within the oven.

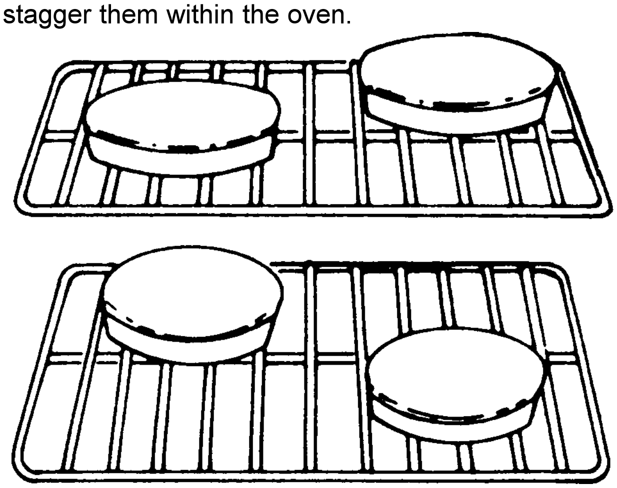


FIGURE 34

# SAFE OPERATING PROCEDURES

## OPERATING THE TOP BURNERS

### MODELS WITHOUT SEALED BURNERS

The top burners of some models are equipped with Tri-Set top burner valves. These valves provide flame adjustment for any size flame which is desired as well as "click" positions for "LO", "MED", and "HI" settings. Depress the knob and turn the knob counterclockwise as far as it will go. When the burner lights, turn the knob back to the desired flame height.

The "HI" position provides a flame which will bring water to a full boil quickly. This is the "full on" position of the valve.

If the burner flame is turned down, an audible "click" can be heard as the valve reaches the "MEDIUM" position. This flame is sufficient to keep water boiling in a covered pan.

When the flame is turned down lower, a second "click" can be heard. This is a very low or "Keep Warm" flame setting which is the "LO" position on the valve. The low flame provides a warming heat to keep food which is already cooked ready to serve.

The Tri-Set valves are equipped with metered, fixed orifices, and the low setting cannot be adjusted. As there are air shutters, the burner flames can be adjusted in accordance with the Adjustment and Calibration Instructions.

The HI-LOW valves on other models are similar but without the "click" stops.

### TOP BURNERS

The top burners consists of a burner and integral cap, a flash tube and support, a gas delivery tube including venturi and an adjustment air shutter. These burners are designed for trouble free operation with a minimum of parts.

### MODELS WITH SEALED BURNERS

The top burners of these models are equipped with Tri-Set top burner valves. These valves provide flame adjustment for any size flame which is desired as well as "click" positions for "LO", "MED", and "HI" settings.

Whenever a top burner gas valve knob is depressed and turned fully counterclockwise, the electrode built into the burner cap will start sparking and continue as long as the knob is held in this position. After the burner lights, move the knob to the "HI" position of the valve. At this time the sparking will cease. There are no standing pilots that have to be lighted or adjusted.

The "HI" position provides a flame which will bring water to a full boil quickly. This is the "full on" position of the valve.

If the burner flame is turned down, an audible "click" can be heard as the valve reaches the "MEDIUM" position. This flame is sufficient to keep water boiling in a covered pan.

When the flame is turned down lower, a second "click" can be heard. This is a very low or "Keep Warm" flame setting which is the "LO" position on the valve. The low flame provides a warming heat to keep food which is already cooked ready to serve.

The low burner flame may be adjusted by turning adjustment screw in center of valve stem. Normally, the low flame should be adjusted to the minimum steady blue flame. Check the adjustment by turning from high to low several times to see that the burner does not go out. **NOTE:** When adjusting the low burner flame, the valve stem should be held in the "LOW" position.

ELECTRONIC CLOCK/TIMER

The Clock/Timer offers a time-of-day clock with a PM designation, a Minute Timer with up to nine (9) hours and fifty-nine (59) minutes, and cook and stop functions. The clock and timer are set up with up and down variable speed "slew" entry.

The display board consists of a vacuum fluorescent display (VFD) with pushbutton entry. There are six (6) pushbuttons: "MINUTE TIMER", "COOK/CLEAN TIME", "STOP TIME", "UP" and "DOWN" and "CANCEL/CLOCK". The "UP" and "DOWN" pushbuttons are for time setting.

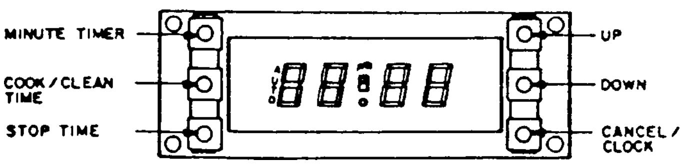



Figure 56 - Electronic Clock/Timer

The Clock/Timer is a digital clock with a minute timer and automatic control cooking cycle. The clock is set via the function setting and slew controls. When power is connected to the unit, or a power failure of longer than three (3) seconds occur, the display will show "12:00" flashing at the rate of 1/2 second ON and 1/2 second OFF.

**Setting the Time-of-Day**

The clock setting is achieved by depressing the "CANCEL/CLOCK" pushbutton first. Then key in the desired time of day by using the "UP" and "DOWN" pushbutton keys. The clock has a PM designation on the VFD for the PM time setting.

The Clock/Timer also incorporates military timing capabilities. In order to change from the standard AM/PM clock operation to military time clock operation or vice versa, simultaneously press "COOK/CLEAN TIME" button and the "STOP TIME" button. **NOTE:** The "UP" and "DOWN" buttons must be pressed within five (5) seconds after selecting or pressing any timing function button ("CANCEL/CLOCK", "MINUTE TIMER", "COOK/CLEAN TIME", "STOP TIME"). If the "UP" and "DOWN" buttons are not pressed within the five (5) second period, incorrect or no programming will occur.

**Setting the Minute Timer**

The minute timer can be used for precisely time baking or broiling operations in the oven. It can be used for timing from one (1) minute up to nine (9) hours and fifty-nine (59) minutes.

**To Set the Minute Timer:**

1. Display the "MINUTE TIMER" button. The timer will display "0:00".

2. Press the "UP" button until the desired time period is displayed, and release the "UP" button.

   The minute timer is now programmed. After approximately five (5) seconds the timer display will revert back to the Time-of-Day while continuing to count down the programmed time. An alarm will sound when the timer reaches "0:00". Press the "MINUTE TIMER" button to silence the alarm. To check the remaining time in the program, simply press the "MINUTE TIMER" button.

   The Minute Timer can also be used when the Clock/Timer is programmed for a Timed Bake or Self-Clean operation. **NOTE:** The Minute Timer does not control oven operation.

**SETTING TIMER FOR TIMED BAKE (Bake Cycle Only)**

**SEMI-AUTOMATIC OPERATION**

Oven starts at once and shuts off at the end of the cooking cycles.

1. Turn selector switch knob to "AUTO".

2. Turn oven control knob to the desired baking temperature.

3. Press the "STOP TIME" button. The display will show "0:00".

4. Press the "UP" button to set the desired stop time, and then release the "UP" button. After approximately five (5) seconds, the display reverts back to the Time-of-Day, "AUTO" appears on the left of the display along with the oven indicator in the center of the display signifying that the timed bake cooking cycle has started. When the desired stop time is reached, the oven indicator light goes out and an alarm will sound for approximately ten (10) seconds. The oven will automatically shut off. "AUTO" will continue to blink ON and OFF indicating that the clock timer was set for an automatic timed function and is completed.

5. Turn the selector switch to "MANUAL", oven control to the OFF position and press the "CANCEL/CLOCK" button.

**DELAYED TIME BAKE**

Oven starts at a later time and shuts off at the end of the cooking cycle.

1. Turn selector switch knob to "AUTO".
2. Turn oven control knob to the desired baking temperature.
3. Press "COOK/CLEAN TIME" button. The display will show "0:00".
4. Press the "UP" button to set the desired length of baking time. **EXAMPLE:** To time bake for three (3) hours press and hold the "UP" button until "3:00" appears on the display, then release the UP button.
5. Press the "STOP TIME" button.
6. Press the "UP" button to set the desired stop time. To have the time bake cycle finish at five o-clock (5:00), press and hold the "UP" button until "5:00" appears on the display, then release the "UP" button. After approximately five (5) seconds, the display reverts back to the Time-of-Day and "AUTO" appears on the left of the display indicating that the Clock/Timer is programmed for an automatic timed function. The clock will automatically calculate the start time. When the starting time is reached, the oven indicator in the center of the display will come on indicating that the timed bake cycle has started.

   When the stop time is reached, the oven indicator turns off and an alarm will sound for approximately ten (10) seconds. The oven will automatically turn off and AUTO will continue to blink ON and OFF indicating that the Clock/Timer was set for an automatic timed mode and it is completed.
7. Turn the selector switch to "MANUAL", the oven control to the OFF position, and press the "CANCEL/ CLOCK" button.

**SETTING THE TIME FOR SELF-CLEAN**

**TO START SELF-CLEAN NOW:**

1. Turn the Selector switch knob to the "AUTO" position.
2. Turn the oven control counterclockwise until it stops ("CLEAN - TURN TO STOP" position).
3. Move the latch lever to the right hand (self-clean) position. The clean indicator will now come on.
4. Press the "COOK/CLEAN TIME" button. The display will show "0:00".
5. Press the "UP" button to set the desired length of the clean time. **EXAMPLE:** To self-clean the oven for three (3) hours, press and hold the UP button until "3:00" appears on the display, then release the "UP" button.

   After approximately five (5) seconds, the display reverts back to the Time-of-Day and "AUTO" appears on the left of the display along with the oven indicator in the center of the display signifying that the clean cycle has started.

   The oven indicator light on the control panel will come on and cycle ON and OFF with the thermostat.
6. At the end of the clean cycle the oven indicator light and oven indicator (clock) will turn OFF, and an alarm will sound for approximately ten (10) seconds. The oven will automatically turn off and "AUTO" will continue to blink ON and OFF indicating that the Clock/Timer was set for an automatic timed mode and it is now completed.
7. Turn the selector switch to "MANUAL", the oven control to "OFF" and press the "CLOCK/CANCEL" button.
8. The oven door can be opened approximately 30 minutes after the completion of the clean cycle. Do not attempt to open the oven door latch until approximately thirty (30) minutes have elapsed, otherwise the door lock mechanism may be damaged.

   If the door will not open, wait five (5) minutes and try again.

**TO START SELF-CLEAN LATER:**

1. Turn the selector switch knob to the "AUTO" position.
2. Turn the oven control counterclockwise until it stops ("CLEAN" - turn to "STOP" position).
3. Move the latch lever to the right hand ("SELF-CLEAN") position. The clean indicator will now come on.
4. Press the "COOK/CLEAN" button.
5. Press the "UP" button to set the length of time desired to self-clean the oven. For example, to self-clean up to three (3) hours, press and hold the "UP" button until "3:00" appears on the display, then release the "UP" button.

**⚠ WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

6. Press the "STOP TIME" button.

7. Press the "UP" button to set the desired stop time of the self-clean cycle. For example, to have the self-clean end at 4 o'clock, press and hold the "UP" button until "4:00" appears on the display, then release the "UP" button. After approximately five (5) seconds, the display will revert back to the Time-of-Day and "AUTO" will appear on the left of the display indicating the "CLOCK/TIMER" is programmed for an automatic timed operation. The clock will automatically calculate the start time of the self-clean cycle. In other words, a three (3) hour self-clean cycle would begin at one (1) o'clock and end at four (4) o'clock.

   When the start time of the self-clean cycle is reached, the oven indicator in the center of the display will come on and the clean cycle will begin.

   The oven indicator light on the control panel will come on and cycle ON and OFF with the thermostat. When the stop time is reached, the oven indicator turns off and an alarm will sound for approximately ten (10) seconds. The oven will automatically turn off and "AUTO" will continue to blink on and off indicating the Clock/Timer was set for an automatic timed mode and it is not completed.

8. After the clean cycle turn the selector switch to "MANUAL", the oven control to "OFF", and press the "CLOCK/CANCEL" button.

9. The oven door can be opened approximately thirty (30) minutes after the completion of the clean cycle. Do not attempt to open the oven door latch until approximately thirty (30) minutes have elapsed, otherwise the door lock mechanism may be damaged. DO NOT FORCE THE LATCH HANDLE.

   If the oven door will not open, wait five (5) minutes and try again.

**CLOCK/TIMER TESTING PROCEDURES**

**P.C. BOARD TESTING - NO POWER TO UNIT**

1. Shut off power to the range and remove the P.C. board.

2. Set ohmmeter to RX10 scale.

3. Attach the ohmmeter leads to the P.C. board L1 (TB1) and N (TB2) terminals. A resistance reading of approximately one hundred (100) ohms should be indicated. If zero (0) or infinite ohms is indicated, the P.C. board must be replaced.

4. Attach one (1) meter lead to the transformer ground terminal and the other meter lead to the L1 (TB1) terminal. Infinite ohms should be indicated. If zero (0) or a low ohms reading is indicated, replace the P.C. board.

5. Remove the meter lead from the L1 (TB1) terminal and attach it to the N (TB2) terminal. Infinite ohms should again be indicated. If zero (0) or a low ohms reading is indicated, replace the P.C. board.

6. Attach the ohmmeter leads to the K1 relay contact terminals TB4 and TB5. An infinite ohms reading should be indicated. If a zero (0) or a low ohms reading is indicated, replace the P.C. board.

7. Attach the ohmmeter leads to the K1 relay contact terminals TB6 and TB7. Infinite ohms should be indicated. If a zero (0) or low ohms reading is indicated, replace the P.C. board.

8. Set the ohmmeter to the RX1 ohms scale and zero the meter. Attach the meter leads to pins two (2) and fourteen (14) at the P.C. board J2 20 pin plug block. A resistance reading of approximately two (2) to three (3) ohms should be indicated. If an infinite ohms reading is indicated, replace the P.C. board.

**K1 RELAY CONTACT TESTING**

1. Shut off power to the range.

2. Remove the wire leads from the P.C. board terminals TB4, TB5, TB6, and TB7. Wrap the wire lead terminal ends with electrical tape to reduce the possibility of electrical shock or a short circuit to the range.

3. Set an ohmmeter to the RX1 scale and connect the meter leads to P.C. board terminals TB4 and TB5.

4. Turn on the power to the range and set the clock for the correct time of day. Contact TB4 - TB5 should be open (infinite ohms).

**⚠ WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

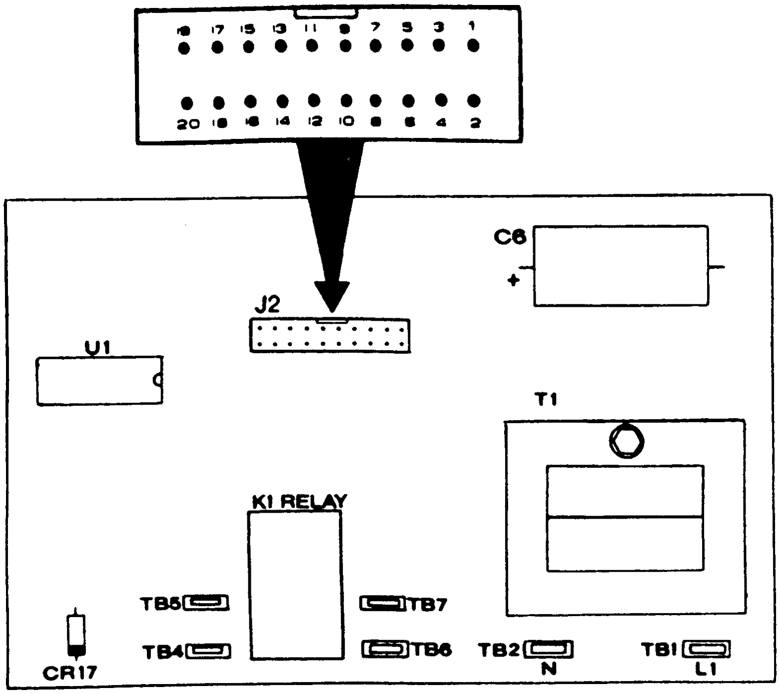



Figure 57 - Clock/Timer P.C. Board

5. Set the Cook/Clean time for one (1) minute by pressing the "COOK/CLEAN TIME" button ("0:00" will be displayed) and then pressing the "UP" button one time ("0:01" should be displayed). After a short delay the TB4 - TB5 contact should close (zero ohms), "AUTO" and the oven indicator symbol should appear on the left and center of the display, and the Time-of-Day will appear on the digital display. When the one (1) minute Cook/Clean time elapses, the TB4 - TB5 contact should open (infinite ohms), an alarm will sound for approximately ten (10) seconds and the oven indicator symbol in the center of the display will turn off. "AUTO" will continue to blink ON and OFF to indicate that the Clock/Timer was programmed for a timed operation. Press the "CANCEL/CLOCK" button to turn off the blinking "AUTO" display.

6. Press the "STOP TIME" button and enter the stop time for two (2) minutes past the time of day. **EXAMPLE:** Set the Time-of-Day to 12:00.

   Press the "STOP TIME" button (the display will continue to show the Time-of-Day), then press the "UP" button until "12:02" is displayed.

   After a short delay, contact TB4 - TB5 should close (continuity) and the display will show the Time-of-Day along with the oven indicator in the center of the display and "AUTO" on the left of the display.

   When the stop time is reached, the TB4 - TB5 contact should open (infinite ohms), the oven indicator in the center of the display turns off, and an alarm will sound approximately ten (10) seconds. "AUTO" will continue to flash ON and OFF to designate that the Clock/Timer was programmed for a timing function. Press the "CANCEL/CLOCK" button to turn off the flashing "AUTO" display.

7. Connnect the ohmmeter leads to terminals TB6 and TB7 and repeat Steps 4 - 6 to test the other K1 relay contact.

**CLOCK P.C. BOARD VOLTAGE TESTS**

Extreme caution must be taken when performing any live voltage tests to avoid the possibility of electrical shock or damage to the range components and/or testing equipment.

1. Shut off power to the range and disconnect the wire leads from the P.C. board terminals L1 (TB1) and N (TB2) to check the input voltage. Using a voltmeter

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

set to read 120 VAC or higher, attach the meter leads to the L1 and N wire leads and turn on power to the range. A voltage reading of approximately 120 VAC should be indicated. If no voltage is indicated, check the range wiring. If 120 VAC is indicated shut off power to the range and reconnect L1 and N wire leads to the P.C. board terminals.

2. Disconnect the 20 pin ribbon cable connector from the P.C. board J2 connector and turn on the power to the range. Check for voltages at the following pins at the J2 connector. (See Figure 28.)

| PINS | VOLTAGE |
|---|---|
| 2-18 | -25 to -35 VDC |
| 6-18 | -7 to -9 VDC |
| 8-18 | -7 to -9 VDC |
| 10-18 | -7 to -9 VDC |
| 14-18 | -25 to -35 VDC |
| 15-18 | -25 to -35 VDC |
| 2-14 | 2.0 to 3.6 VDC |

**DISPLAY BOARD TESTING**

Shut off power to the range and remove the display board from the control panel (refer to Disassembly Procedures). The function switches and diodes on the display board can be checked at the J1 connector. Install the clock control buttons into the display board switch housings. Refer to Figure 30 for the correct pin number identification.

1. To check the "MINUTE TIMER" switch and CR3 diode, connect an ohmmeter (set to RX10 or higher) to pins 8 and 17 at the display board J1 connector and press the minute timer button. Reverse the ohmmeter leads and again press the "MINUTE TIMER" button. On reading should indicate infinite ohms and the other reading should indicate low ohms (the diode conduction resistance and closed minute timer switch). If a zero (0), low or infinite ohms reading is indicated with the meter leads connected in both directions, the display board should be replaced.

2. To check the "COOK/CLEAN TIME" switch and the CR5 diode, connect the ohmmeter leads to pins 10 and 16 at the display board J1 connector and press the "COOK/CLEAN TIME" button. Reverse the meter leads and again press the "COOK/CLEAN TIME" button. One reading should indicate infinite ohms and the other reading should indicate low ohms (the diode conduction resistance and closed "COOK/CLEAN TIME" switch). If a zero, low, or infinite ohms reading is indicated with the meter leads connected in both directions, the display board should be replaced.

3. To check the "STOP TIME" switch and the CR5 diode, connect the ohmmeter leads to Pins 6 and 16 at the display board J1 connector and press the "STOP TIME" button. Reverse the meter leads and again press the "STOP TIME" button. One (1) reading should indicate infinite ohms and the other reading should indicate low ohms (the diode conduction resistance and closed STOP TIME switch). If a zero (0), low or infinite ohms reading is indicated with the meter leads connected in both directions, the display board should be replaced.

4. To check the "UP" switch and the CR4 diode, connect the ohmmeter leads to Pins 8 and 20 at the display board J1 connector and press the "UP" button. Reverse the meter leads and again press the "UP" button. One reading should indicate infinite ohms and the other reading should indicate low ohms (the diode conduction resistance and closed "UP" switch). If a zero (0), low, or infinite ohms reading is indicated with the meter leads connected in both directions, the display board should be replaced.

5. To check the "DOWN" switch and the CR4 diode, connect the ohmmeter leads to Pins 6 and 20 at the display board J1 connector and press the "DOWN" button. Reverse the meter leads and again press the "DOWN" button. One reading should indicate infinite ohms and the other reading should indicate low ohms (the diode conduction resistance and closed "DOWN" switch). If a zero (0), low, or infinite ohms reading is indicated with the meter leads connected in both directions, the display board should be replaced.

6. To check the "CLOCK/CANCEL" switch and the CR2 and CR4 diodes, connect the ohmmeter leads to Pins 10 and 20 at the display board J1 connector and press the "CLOCK/CANCEL" button. Reverse the meter leads and again press the "CLOCK/CANCEL" button. One reading should indicate infinite ohms and the other reading should indicate low ohms (CR2 and CR4 diode conduction resistance and closed "CLOCK/CANCEL" switch). If a zero (0), low, or infinite ohms reading is indicated with meter leads connected in both directions, the display board should be replaced.

7. The CR1 diode can be checked by connecting the

ohmmeter leads to Pins 10 and 17 at the display board J1 connector and then reversing the ohmmeter leads. One reading should indicate infinite ohms and the other reading should indicate low ohms (CR1 diode conduction resistance). If a zero (0), or infinite ohms reading is indicated with the meter leads connected in both directions, the display board should be replaced.

**P.C. BOARD/DISPLAY BOARD INTERCONNECT CABLE**

The 20 pin ribbon cable that connects the Clock/Timer P.B. board to the display board can be checked for continuity using an ohmmeter set to the low ohms scale. Refer to Figure 29 and 30 for correct pin identification. If an open wire is indicated in the ribbon cable, the cable should be replaced.

The information on Page 54 pertains to the 20 wire ribbon cable which connects the P.C. board to the display board. A switch was added to each wire of the ribbon cable to demonstrate the results if that switch/wire opened. This information may be useful in diagnosing and repairing some display/control problems on the digital clock/timer.

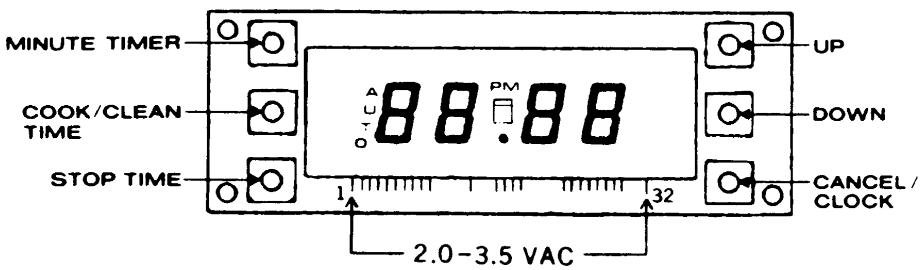



Figure 58 - Display Board

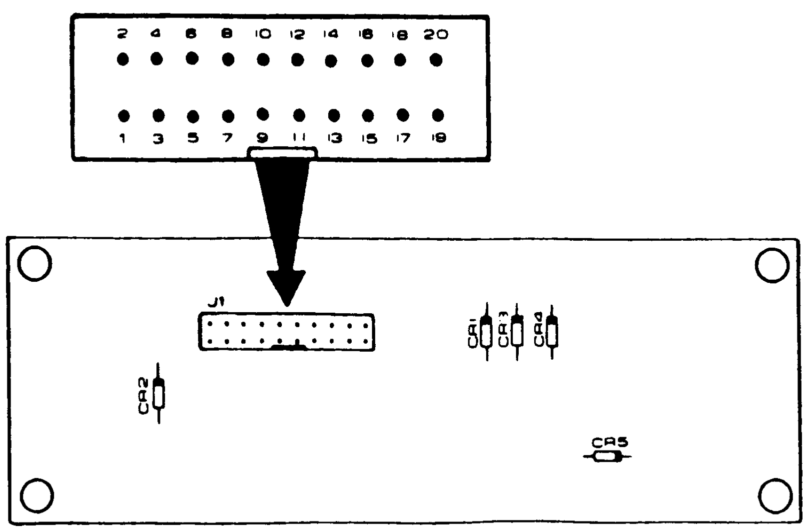



Figure 59 - Display Board - Rear View

# OPERATION AND SERVICE PROCEDURES

## (SLIDE IN MODELS)

1 through 20 below represent the 20 Wire Ribbon Cable connecting the Clock/Timer P.C. Board to the Display Board and Circuit/Operation failure mode or result if an individual Wire/Circuit is Open.

EXAMPLE: No "STOP TIME" or "DOWN" Programming Operations. Look for an open number 6 wire in ribbon cable.

| Wire | Result if Open |
|---|---|
| 1 | INTERRUPTS UPPER HORIZONAL SEGMENT OF NUMERIC DIGITS. DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 2 | INTERRUPTS ENTIRE DISPLAY (BLANK). DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 3 | INTERRUPTS RIGHT UPPER VERTICAL SEGMENT OF NUMERIC DIGITS. DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 4 | INTERRUPTS RIGHT NUMERIC DIGIT (BLANK). DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 5 | INTERRUPTS RIGHT LOWER VERTICAL SEGMENT OF NUMERIC DIGITS. DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 6 | INTERRUPTS "STOP TIME" AND "DOWN" PROGRAMMING OPERATIONS. |
| 7 | INTERRUPTS LOWER HORIZONTAL SEGMENT OF NUMERIC DIGITS. DOES NOT AFFECT PROGRAMMING. |
| 8 | INTERRUPTS "MINUTE TIMER" AND "UP" PROGRAMMING OPERATIONS. |
| 9 | INTERRUPTS LEFT LOWER VERTICAL SEGMENT OF NUMERIC DIGITS. DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 10 | INTERRUPTS "COOK/CLEAN TIME" AND "CANCEL/CLOCK" PROGRAMMING OPERATIONS. ACTIVATES K1 RELAY ON CLOCK/TIMER P.C. BOARD. |
| 11 | INTERRUPTS LEFT UPPER VERTICAL SEGMENT OF NUMERIC DIGITS. DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 12 | NO APPARENT AFFECT ON ANY PROGRAMMING OPERATION OR DISPLAY. |
| 13 | INTERRUPTS CENTER HORIZONTAL SEGMENT OF NUMERIC DIGITS. DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 14 | INTERRUPTS ENTIRE DISPLAY (BLANK). DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 15 | PARTIALLY ILLUMINATES ALL SEGMENTS OF DISPLAY. |
| 16 | INTERRUPTS LEFT NUMERIC DIGIT (BLANK). INTERRUPTS "COOK/CLEAN TIME" AND "STOP TIME" OPERATIONS. |
| 17 | INTERRUPTS THIRD DIGIT IN DISPLAY (BLANK). INTERRUPTS "MINUTE TIMER" OPERATION. ACTIVATES K1 RELAY ON CLOCK/TIMER P.C. BOARD. |
| 18 | NUMERIC DIGITS NOT FULLY ILLUMINATED (STRIPES IN DIGITS). DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 19 | INTERRUPTS "PM" INDICATOR, "AUTO" INDICATOR, "MINUTE TIMER" INDICATOR, AND "OVEN SYMBOL" INDICATOR. DOES NOT AFFECT PROGRAMMING OPERATIONS. |
| 20 | INTERRUPTS SECOND DIGIT IN DISPLAY (BLANK). INTERRUPTS "UP", "DOWN" AND "CLOCK/CANCEL" OPERATIONS. AFFECTS ALL PROGRAMMING OPERATIONS. |

# TROUBLESHOOTING GUIDE

## (SLIDE IN MODELS)

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| Erratic Display Or No Display | No Voltage to Clock/Timer P.C. Board | Check for 120 VAC at P.C. bo TB1 and TB2. If no voltage is wiring. |
| | Defective Clock/timer P.C. Board | Disconnect ribbon cable from voltages at P.C. board 20 pin incorrect voltages are indicate |
| | Defective P.C. Board to Display Board Interconnect Cable | Check interconnect cable for replace cable. |
| | No Voltage to Display Board | Check for 2.0 - 3.5 VAC at dis no voltage is indicated, check Board. |
| Clock/Timer Does Not Respond when a Pushbutton is Pressed | Defective Interconnect Cable | Check interconnect cable for replace cable. |
| | Defective Display Board | Check display board function defective, replace display boa |
| | Defective P.C. Board | If interconnect cable and disp P.C. board. |
| Beeper Does Not Sound When Control Function Buttons Are Pressed. Time-of-Day Clock and Timing Functions Operate Normally. | Defective P.C. Board | Replace the P.C. Board. |
| Time-of-Day Display in Military Time. | Not a Problem. This is a Feature of the Clock/Timer | Press "COOK" time and "STC simultaneously to set clock tin shut off power to unit, wait (5) |
| Oven Does Not Heat In Timer Bake or Self-Clean Timed Modes. Clock/Timer Accepts Programmed Time | Defective P.C. Board | Check K1 relay contacts on P contacts not closing, replace<br><br>Replace Wiring. |

**NOTE: Two (2) piece control system - clock timer in backguard - relay board back bottom of range.**

The Electronic Range Control (ERC) controls all thermostat, selector switch, and clock timing functions for BAKE, TIMED BAKE, BROIL, and SELF-CLEAN operations. The ERC also has a minute timer function which can time an operation up to nine (9) hours and fifty (50) minutes. The minute timer does not control the oven operation.

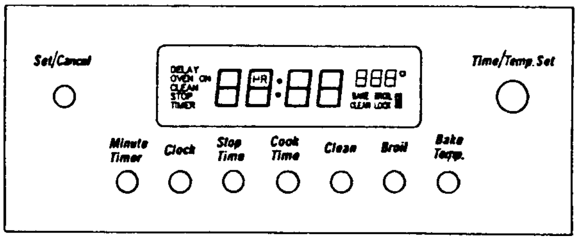



**Figure 35 - Electronic Range Control - ERC**

### To Set Time of Day:

1. Press the "CLOCK" button. "TIME" will appear on the left side of the display.

2. Rotate the "TIME/TEMP. SET" knob to the desired time of day.

3. Press the "SET/CANCEL" button to initiate the time of day clock. "TIME" will go out on the left side of the display. **NOTE:** If the "SET/CANCEL" button is not pressed after the desired time of day is set, the ERC will automatically initiate the time of day after a short period of time.

### To Set Minute Timer:

1. Press the "MINUTE TIMER" button. "TIMER" and ":00" will appear on the display.

2. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired timing period up to nine (9) hours and fifty (50) minutes. The display will increment in 5, 10, 60 second and five (5) and ten (10) minute increments. The ERC will automatically initiate the timer count-down two (2) seconds after the last entry. The timer will count down in seconds if the entered time is one (1) hour or less. If the entered time is more than one (1) hour, the timer will count down in minutes until reaching one (1) hour on the display, then the timer will count down in seconds for the remaining time.

   When the timer counts down to ":00", an alarm will sound three (3) times to indicate the timing function is completed. Press the "MINUTE TIMER" button or the "SET/CANCEL" button to cancel the timer function. If the timer function is not cancelled, the alarm will sound approximately once every ten (10) seconds to remind you to cancel the minute timer function.

   To cancel the minute timer function while the timer is still counting down, simply rotate the "TIME/TEMP. SET" knob counterclockwise until ":00" is displayed. The ERC will automatically cancel the timer function.

### To Use the Bake Function:

1. Press the "BAKE TEMP" button. "BAKE" will appear along with the along with the three (3) center horizontal segments and the degree symbol in the temperature display.

2. Rotate the "TIME/TEMP. SET" knob to the desired baking temperature from 170°F. to 550°F. The display will increase in 5° increments starting with 170°. The ERC will automatically initiate the bake operation approximately two (2) seconds after the last temperature entry and "ON" will appear in the display. The oven temperature rise will be displayed during oven preheat in 5° increments starting at 100°F.

   To cancel the bake function, simply press the "SET/CANCEL" button or rotate the "TIME/TEMP. SET" knob counterclockwise until the temperature display shows the three (3) center horizontal segments and the degree symbol. The ERC will then automatically cancel the bake function.

### To Use the Cook Time Function:

1. Press the "COOK TIME" button. "TIME", "OVEN", AND ":00" will be displayed.

2. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired amount of cooking time up to eleven (11) hours and fifty-five (55) minutes. The display will increase in five (5) and ten (10) minute increments.

3. Press the "BAKE TEMP" button. "BAKE" will appear along with the three (3) center horizontal segments and the degree symbol in the temperature display. If the "BAKE TEMP" button is not pressed within approximately five (5) seconds after setting the cook time, an alarm will sound to remind you to set the bake temperature.

4. Rotate the "TIME/TEMP. SET" knob clockwise to the desired baking temperature from 170°F. to 550°F. The display will increase in 5° increments starting from 170°. The ERC will automatically initiate the timed cook function approximately two (2) seconds

after the last temperature entry and "ON" will appear on the display. The oven temperature rise will be displayed during oven preheat in 5° increments starting at 100°F. When the timed cook function is completed the ERC will automatically turn the oven off and an alarm will sound three (3) times. The display will then show the time of day.

To change the cook time or baking temperature while the oven is operating in the timed cook function, simply press the appropriate button for the function to be changed (COOK TIME or BAKE TEMP) and then rotate the "TIME/TEMP. SET" knob to set the new time or temperature.

To cancel the timed cook function before it is completed, simply press the "SET/CANCEL" button or rotate the "TIME/TEMP. SET" knob counterclockwise until cooking time display shows ":00", or until the temperature display shows the three (3) center horizontal segments and the degree symbol. The ERC will then automatically cancel the timed cook function.

**To Use the Stop Time Function:**

1. Press the "STOP TIME" button. "STOP TIME" will appear in the display.

2. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired stop time or time the oven is to shut off, up to eleven (11) hours and fifty-nine (59) minutes after the time of day depending on the current time of day programmed into the ERC. The display will increase in five (5) minute increments.

3. Press the "BAKE TEMP" button. "BAKE" will appear along with the three (3) center horizontal segments. If the "BAKE TEMP" button is not depressed within approximately five (5) seconds after setting the stop time, an alarm will sound to remind you to set the bake temperature.

4. Rotate the "TIME/TEMP. SET" knob to set the desired baking temperature from 170°F. to 550°F. The display will increase in 5° increments starting from 170°F. The ERC will automatically initiate the baking function approximately two (2) seconds after the last temperature entry and "ON" will appear in the display. The oven will operate until the stop time is reached. At that time the ERC automatically turns the oven off and an alarm will sound three (3) times. The display will then show the time of day.
To change the stop time or the baking temperature while the oven is operating in the stop time function, simply press the appropriate button of the function to be changed (STOP TIME or BAKE TEMP.) and then rotate the "TIME/TEMP. SET" knob to set the new stop time or temperature.

To cancel the stop time function before it is completed, simply press the "SET/CANCEL" button.

**To Use Stop Time for Delayed Baking Function:**

1. Press the "STOP TIME" button. "STOP TIME" and the current time of day will be displayed.

2. Rotate the "TIME/TEMP. SET" knob clockwise to the time the oven should turn off. The display will increase in five (5) minute increments.

3. Press the "COOK TIME" button. "OVEN", "TIME", and the "CALCULATED COOK TIME" will be displayed.

4. Rotate the "TIME/TEMP. SET" knob to enter the amount of time to bake. The display will decrease in five (5) or ten (10) minute decrements depending on the programmed stop time and the time of day. "DELAY" will appear on the display.

5. Press the "BAKE TEMP." button. "BAKE" will appear along with three (3) center horizontal segments and the degree (°) symbol in the temperature display. If the "BAKE TEMP" button is not pressed within approximately five (5) seconds after setting the cook time an alarm will sound as a reminder to set the bake temperature.

6. Rotate the "TIME/TEMP. SET" knob to the desired baking temperature from 170°F. to 550°F. The ERC will automatically calculate the start time. When the start time is reached, "DELAY" will turn off and "ON" will appear. The oven will then operate until the stop time is reached. The ERC will then automatically turn the oven off, an alarm will sound three (3) times and ":00" will be displayed.

7. Press the "SET/CANCEL" button to cancel the timed function.

**To Set Broil Function:**

1. Press the "BROIL" button. "BROIL" will appear along with three (3) center horizontal segments in the temperature display.
2. Rotate the "TIME/TEMP. SET" knob clockwise to set the broil function to either "LO" (approximately 460° F.) or "HI" (approximately 560°F.). The ERC will automatically initiate the broil function approximately two (2) seconds after setting the "LO" or "HI" entry and

"ON" will appear in the display.

To change the broil setting while the oven is operating in the broil mode, simply rotate the "TIME/TEMP SET." knob to change the setting. The ERC will automatically initiate the new broil function approximately two (2) seconds after setting the new entry.

To cancel the broil function, simply press the "SET/CANCEL" button or rotate the "TIME/TEMP. SET" knob counterclockwise until the three (3) center horizontal segments appear on the temperature display. The ERC will then automatically cancel the broil function.

**To Set for Self-Clean:**

1. Move the door lock lever to the far right or locked position.

2. Press the "CLEAN" button. "CLEAN" will appear along with "3:00" in the display indicating a three (3) hour cleaning time. The ERC will automatically initiate the clean function approximately two (2) seconds after the "CLEAN" button is pressed. If the door lock lever is not moved to the locked position prior to pressing the "CLEAN" button, "DOOR" will be displayed and an alarm will sound as a reminder to lock the door. The "LOCK" light will be displayed approximately ten (10) to twenty (20) minutes into the clean cycle and remain on after the completion of the clean cycle. At the completion of the clean cycle the time of day will be displayed along with the "LOCK" light. The "LOCK" light will turn off when the oven temperature is at a safe level to open the door.

3. Allow the oven to cool approximately twenty (20) to thirty (30) minutes before trying to move the door lock lever to the open position. **DO NOT FORCE THE LOCK LEVER.** If the door lock will not open, wait five (5) minutes and try again. **NOTE:** The "LOCK" light and actual door latch locking/unlocking temperatures are not calibrated with each other, i.e., the door lock may be opened before the "LOCK" light turns off or vice versa.

**To Set for Delayed Self-Clean:**

1. Move the door lock lever to the far right or locked position.
2. Press the "STOP TIME" button. "STOP TIME" and the current time of day will be displayed.
3. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired time the oven is to turn off.
4. Press the "CLEAN" button. "DELAY", "CLEAN", and "TIME" will appear along with "3:00" in the display indicating a three (3) hour cleaning time. If the door lock lever is not moved to the lock position prior to pressing the "CLEAN" button. "DOOR" will be displayed and an alarm will sound as a reminder to lock the door. The ERC will automatically calculate the start time.

   **EXAMPLE:** If the current time of day is 12:00, to operate the oven in a clean function which will end at 5:00, (1) lock the oven door, (2) set the stop time for 5:00 and, (3) press the "CLEAN" button. The ERC will start the cleaning function at 2:00 and turn the oven off at 5:00.

   When the start time is reached, "DELAY" will turn off, "ON" will appear, and the ERC will initiate the clean cycle. The "LOCK" indicator will be displayed approximately 10-20 minutes into the clean cycle and remain on after the completion of the clean cycle. When the stop time is reached, the ERC will automatically turn the oven off and the time of day and "LOCK" will be displayed. "LOCK" will remain displayed until the oven temperature is at a safe level to open the door.

5. Allow the oven to cool approximately twenty (20) to thirty (30) minutes before trying to move the door lock lever to open the door. **DO NOT FORCE THE LOCK LEVER.** If the door lock will not open, wait five (5) minutes and try again. **NOTE:** The "LOCK" light and actual door latch locking/unlocking temperatures are not calibrated with each other, i.e., the door lock may be opened before the "LOCK" light turns off or vice versa.

**To Use Cancel Function:**

1. Pressing the "SET/CANCEL" button will cancel all cooking, cleaning, or timing functions except the minute timer function. The display will return to the time of day unless a minute timer operation is present.

2. To display the time of day during a program, press the "CLOCK" button. The display will return to the time of day. To view the remaining time on a program after returning the display to the time of day, simply press the appropriate function button ("MINUTE TIMER", "STOP TIME", "COOK TIME", or "CLEAN" button). The display will then show the remaining program time.

**ELECTRONIC RANGE CONTROL - ERC**

**⚠ WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

## ERC SYSTEM EXPLANATION

THE ELECTRONIC RANGE CONTROL - ERC - operates in conjunction with a remote relay/power supply circuit board and an oven temperature sensor to control all bake, timed bake, broil, and self-clean functions.

The ERC has eight (8) function buttons to control minute timer, clock, stop time, bake, timed bake, broil, clean and set/cancel operations, and a rotary dial to set time and temperature.

The ERC display consists of two (2) digital readouts which display the time of day, cooking time, cleaning time, minute timer time, stop time, baking temperature, lo/hi broil and failure codes as well as several indicators to show which function the ERC is controlling.

The relay/power supply circuit board consists of two (2) relays for bake and broil operations which are controlled by the ERC, and a step down transformer with two (2) secondary windings which convert the 120 VAC input to 3.2 VAC filament voltage to power the ERC display and 20.3 VAC drive voltage which the ERC uses to turn on the bake and broil relays.

The oven temperature sensor is mounted in the oven cavity and is connected to the J2 connector on the rear of the ERC. As the oven temperature increases, the sensor resistance also increases. The ERC converts this resistance change to a corresponding temperature readout. The ERC then cycles the bake/broil relays to maintain the desired temperature setting.

The ERC is also capable of sensing certain failure conditions which can occur in the temperature sensor, the self-clean latch switch or the ERC itself. If the ERC senses a failure, power will be removed from the bake/broil relays, an alarm will sound, and a failure code will be displayed. Each major component of the Electric Range Control System (ERC, temperature sensor, or relay/power supply circuit board) is serviced as a separate part. However, each component and related wire harness must be tested prior to replacing an individual component.

## TESTING PROCEDURES

"DISPLAY" MODE - All segments of the display can be checked by using the following sequence:

**NOTE:** Clock must previously be set for the time of day.

1. Press and hold the "CLOCK" button until "TIME" is displayed and until "TIME" turns off.

2. Momentarily press "CANCEL" button until all display segments are lit. Following the lighting of all of the segments, the display will go through a "SALES DEMONSTRATION" mode, displaying individual functions. The "SALES DEMONSTRATION" mode will show: (1) "BROIL", three (3) horizontal segments and the degree symbol, (2) "OVEN" "TIME" and ":00" , (3) "CLEAN", "TIME" and "3:00" (4) "TIMER" and ":00", (5) time of day, (6) all segments, and (7) "BAKE", three (3) horizontal segments and the degree symbol. The program will continue to repeat until the "CANCEL" button is pressed. The time of day should then be displayed.

## RELAY/POWER SUPPLY CIRCUIT BOARD TESTING

### Testing with No Voltage Applied

The relay/power supply circuit board transformer windings, relay windings, and relay contacts can be checked as follows:

1. Shut off power to the appliance.

2. Disconnect the J1 connector from the circuit board. Also remove the wire leads from the circuit board terminals E1 through E7. Using an ohmmeter, check for the following readings in Table 1 below. Refer to Figure 22 for correct terminal/pin location. Figure 23 shows the relay/power supply circuit board schematic.

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

**NOTE:** Check each transformer terminal (J1-5, J1-6, J1-7, J1-8, E1 and E2) in turn to ground terminal E3. All readings must be infinite (OPEN).

| TERMINALS /PINS | CIRCUIT TESTED | APPROXIMATE OHMS READINGS |
|---|---|---|
| J1-1 TO J1-2 | BAKE RELAY COIL | 560 OHMS |
| J1-1 TO J1-3 | BROIL RELAY COIL | 560 OHMS |
| J1-5 TO J1-6 | TRANSFORMER SECONDARY WINDING | 5-7 OHMS |
| J1-7 TO J1-8 | TRANSFORMER SECONDARY WINDING | 2-4 OHMS |
| E1 TO E2 | TRANSFORMER PRIMARY WINDING | 120-150 OHMS |
| E4 TO E5 | BROIL RELAY CONTACT | INFINITE OHMS (OPEN) |
| E6 TO E7 | BAKE RELAY CONTACT | INFINITE OHMS (OPEN) |

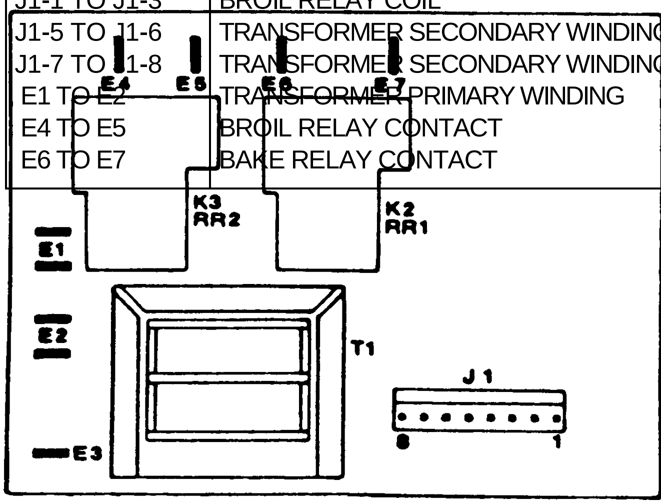



Figure 36
Relay/Power Supply Circuit Board
Terminal/Pin Locations

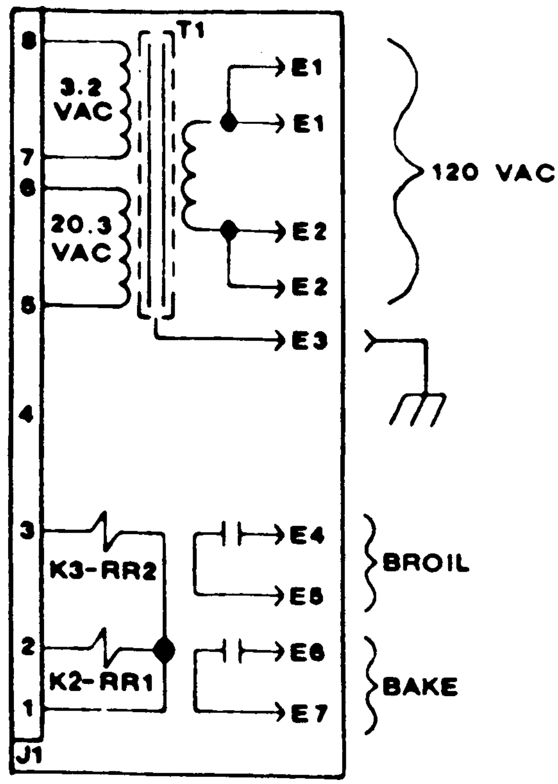



Figure 37
Relay Board Schematic

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

**Testing with Voltage Applied**

The relay/power supply circuit board voltages can be tested by following the procedures below. Caution should always be taken when making live voltage tests to avoid electrical shock and/or damage to range components or test equipment.

1. To check the input supply voltage to the transformer primary winding, shut off power to the range and connect your AC voltmeter to terminals E1 and E2. Turn on power to the range. A voltage reading of approximately 108-132 VAC should be indicated. If a low voltage or no reading is indicated, check for loose connections or broken wiring.

2. To check the transformer secondary winding output (filament) voltage, shut off power to the range and insert your AC voltmeter leads into the J1 connector at pins J1-7 and J1-8 and turn on power to the appliance. A voltage reading of approximately 3.2 VAC should be indicated. If no voltage is indicated, recheck primary input voltage (Step 1). If primary input voltage checks good, replace the relay/power supply board.

3. To check the transformer secondary winding output voltage (used to drive relays), shut off power to the range and insert your AC voltmeter leads into the J1 connector at pins J1-6 and J1-5 and turn on power to the appliance. A voltage reading of approximately 20.3 VAC should be indicated. If no voltage is indicated, recheck primary input voltage (Step 1). If primary input voltage checks good, replace the relay/ power supply board.

4. To check the bake relay drive voltage supplied to the relay/power supply board from the ERC, shut off power to the range and insert your AC voltmeter leads into the J1 connector at pins J1-2 and J1-1 and turn on power to the range. With no bake operation programmed into the ERC, zero (0) VDC should be indicated. Program the ERC for a bake operation. When the ERC initiates the bake program, a voltage reading of approximately 24 VDC should be indicated. If no voltage is indicated, check for loose connections or broken wiring, and also for drive voltage at the ERC J1 connector at pins J1-9 and J1-5.

5. To check the broil relay drive voltage supplied to the relay/power supply board from the ERC, shut off power to the range and insert your DC voltmeter leads into the J1 connector at pins J1-3 and J1-1 and turn on power to the range. With no bake or broil operation programmed into the ERC, zero (0) VDC should be indicated. Program the ERC for a broil operation. When the ERC initiates the broil program, a voltage reading of approximately 24 VDC should be indicated. If no voltage is indicated, check for loose connections or broken wiring, and also for drive voltage at the ERC J1 connector at pins J1-8 and J1-5.

6. To check the bake relay contacts, shut off power to the range and attach your AC voltmeter leads to the relay board terminals E6 and E7 and turn on power to the range. A voltage reading of approximately 120 VAC should be indicated. Program the ERC for a bake operation.

   When the ERC initiates the bake function, the voltage reading should drop to zero (0) VAC. If the voltage does not drop to zero (0) VAC, the relay is not being energized or the relay is defective.

7. To check the broil relay contacts, shut off power to the range and attach your AC voltmeter leads to the relay board terminals E4 and E5 and turn on power to the range. A voltage reading of approximately 120 VAC should be indicated. Program the ERC for a broil operation. When the ERC initiates the broil function, the voltage reading should drop to zero (0) VAC. If the voltage does not drop to zero (0) VAC, the relay is not being energized or the relay is defective.

**ERC OVEN TEMPERATURE SENSOR**

The oven temperature sensor is mounted in the oven cavity and electrically connected to the J2 connector, pins 1 and 3 on the rear of the ERC. The sensor resistance changes with temperature changes inside the oven cavity and the ERC controls the oven temperature by reacting to the sensor resistance changes.

The sensor resistance can be checked by removing the sensor interconnect harness plug from the ERC J2 connector and inserting the ohmmeter leads into the harness connector plug. A resistance reading of 1091 ± 5.5 ohms should be indicated at ambient room temperature (75°F.)

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

If a higher resistance is indicated disconnect the interconnect harness from the sensor and recheck the sensor resistance to assure that the problem is in the sensor and not in the interconnect harness or due to a bad connection. The following table shows the corresponding resistance for different oven temperatures.

| SENSING ELEMENT TEMPERTURE | SENSING RESISTANCE |
|---|---|
| 75°F | 1091 ± 5.5 OHMS |
| 350°F | 1654 ± 11 OHMS |
| 535°F | 2018 ± 16 OHMS |
| 875°F | 2652 ± 24 OHMS |

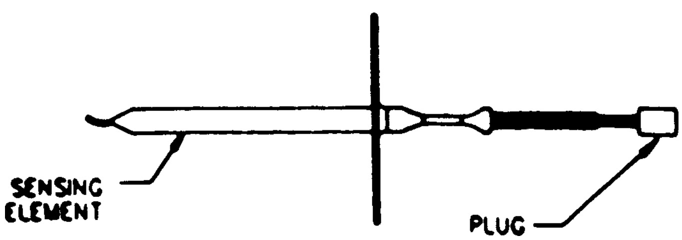



Figure 38 - E.R.C. Oven Temperature Sensor

## ERC TROUBLESHOOTING FAILURE CODES AND CALIBRATION

### ERC REMOVAL

1. Shut off power to the range.

2. Remove the "TIME/TEMP. SET" knob by pulling it off of the control shaft.

3. Remove the eight (8) function control buttons by pulling them out of the ERC.

4. Remove the two (2) control panel lower trim mounting screws. Carefully pull the lower trim and control panel glass towards the front of the range and remove trim and glass.

5. Remove the four (4) backguard control panel mounting screws (two (2) each side) and pull the panel assembly forward. The ERC input and relay drive voltages can now be tested at the ERC J1 connector with power applied to the range. (See ERC voltage tests and Figure 37.) The sensor resistance can also be checked by removing the J2 connector and inserting the ohmmeter leads into the connector plug terminals.

6. To remove the ERC, disconnect the J1 and J2 connectors and remove the four (4) ERC mounting screws.

### ERC VOLTAGE TESTS

1. Partially remove the ERC from the control panel. Follow the ERC Removal Procedures, Steps 1 - 5.

2. To check the input voltage for the vacuum fluorescent display, insert the AC voltmeter leads into the J1 connector at pins J1-1 and J1-2, and turn on power to the range.

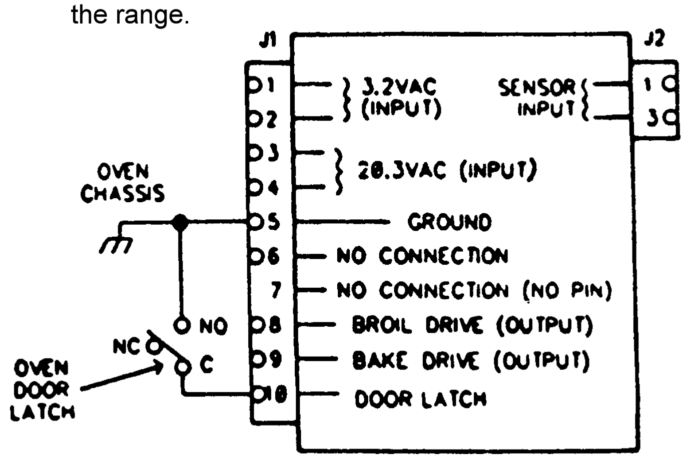



Figure 25 - Electronic Range Control Pin Identification

A voltage reading of approximately 3.2 VAC should be indicated. If no voltage is indicated, check for loose connections, open wire (s) and relay/power supply circuit board output voltage at pins J1-7 and J1-8 on the relay board.

3. To check the input voltage that the ERC uses to drive the bake/broil relays, insert your AC voltmeter leads into the J1 connector pins J1-3 and J1-4. A voltage reading of approximately 20.3 VAC should be indicated. If no voltage or a low voltage is indicated, check for the input supply voltage at pins J1-3 and J1-4 (Step 3).

4. To check the bake relay drive voltage, insert your DC voltmeter leads into the J1 connector at pins J1-9 and J1-5, and program the ERC for a bake operation.

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

When the ERC initiates the bake operations, a voltage reading of approximately 24 VDC should be indicated. If no voltage is indicated, check for the input supply voltage at pins J1-3 and J1-4 (Step 3).

5. To check the broil relay drive voltage, insert your DC voltmeter leads into the J1 connector at pins J1-8 and J1-5, and program the ERC for a broil operation. When the ERC initiates the broil operation, a voltage reading of approximately 24 VDC should be indicated. If no voltage is indicated, check for the input supply voltage at pins J1-3 and J1-4 (Step 3).

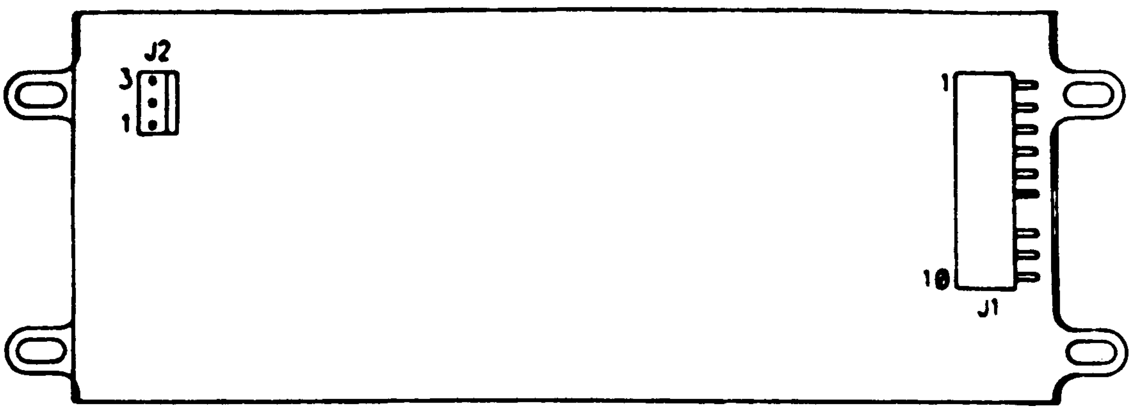



Figure 40 - Electronic Range Control Rear View

## ERC FAILURE CODES AND WARNINGS

The Electronic Range Control is capable of detecting certain failures within the ERC, the oven temperature sensor and the self-clean latch switch.

The failure codes and warnings which may appear on the display include F1 through F8, "DOOR", or "LOCK". A brief description of the failure codes and warnings is listed below:

F1 - Indicates a failed component in the E.R.C.
F2 - Sensor resistance too high. Check sensor resistance, wire harness, and connections.
F3 - Open wire lead in sensor harness, bad harness/ sensor connection or sensor resistance too high.
F4 - Sensor resistance too low (below 500 ohms). Check for a short in sensor wire harness and check sensor resistance.
F5 - Indicates a failed component in the ERC.
F6 - Indicates a failed component in the ERC or due to fluctuations in 60 Hz power source.
F7 - Indicates a shorted or sticking contact in one or more of the function control switches. Make sure the function buttons are not binding on the control panel glass - reposition the ERC and/or glass. Make sure the function buttons spring outward after being depressed.
F8 - Indicates a failed component in the ERC.
F9 - Door Latch Supervisory (Door latched):
Sounds alarm and resets control to non-cook mode if the door latch supervisory logic fails for a sample period of 2 seconds (while the door is latched). Unlatching the door (if not locked) and Cancel Key may reset the display code and audible. If the door is locked (temp $\geq$ 500°F) power must be removed until the oven door can be unlatched.

**"LOCK" LIGHT ON -** If "LOCK" appears in the display when the oven is not set in clean mode, the oven sensor resistance is too high. Check sensor resistance, wire harness, and connections.

**"DOOR" APPEARS IN DISPLAY IN BAKE/BROIL MODE -** This is an indication of a defective latch switch or shorted wire lead from the ERC pin J1-10 to ground, or door is latched.

**"DOOR" APPEARS IN DISPLAY DURING CLEAN MODE -** This is an indication of a defective latch switch or an open wire lead, from the ERC pin J1 - 10 to ground, or that the door latch has not been closed as required to initiate the clean cycle.

## ELECTRONIC RANGE CONTROL TEMPERATURE CALIBRATION

The ERC incorporates ± 35°F. calibration capabilities. Follow the procedures below to calibrate the ERC.

1. Press and release the "BAKE TEMP." function button.

2. Rotate the "TIME/TEMP. SET" knob clockwise until a temperature between 500° - 550° is displayed. Quickly, before the ERC initiates the bake function, press and hold the "BAKE TEMP" function button. After approximately four (4) seconds, the display will show "00" or the offset temperature that was previously programmed into the ERC.

3. Rotate the "TIME/TEMP. SET" knob to show the desired offset temperature in the display (up to ± 35°F. in 5° increments, "+" to set oven temperature higher and "-" to reduce oven temperature. **NOTE:** An accurate temperature test should be performed before calibrating the ERC.

4. Press the "CLOCK" function button to enter the offset temperature into the ERC. The calibration adjustment will remain programmed into the ERC even if power is removed from the ERC or range. **NOTE:** Self-clean temperatures are not affected by this calibration.

   If oven temperature testing reveals that a calibration in excess of ±35°F. is required, the oven temperature sensor, sensor wire harness, and wire harness/sensor connections must be checked before replacing the ERC. A resistive connection within the sensor harness will affect oven temperature.

# TROUBLE SHOOTING GUIDE

## Electronic Range Control (ERC) (Models w/Two Piece Control)

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| A. Display flashes the Time-of-Day | 1. Power failure. | 1. This is a normal condition wh Press the "CLOCK" button a |
| | 2. Intermittent connection between E.R.C. and relay/power supply board. | Tighten loose connections c wiring. |
| | 3. Defective E.R.C. | Replace E.R.C. |
| B. No Display - E.R.C. totally inoperative | 1. No power to range. | 1. Check house fuse or circuit l wall outlet or junction box. |
| | 2. No voltage to relay/power supply circuit board. | 2. Check for 120 VAC at relay/ terminals E1 and E2. If no v range wiring. If voltage is in |
| | 3. No seconday output drive voltage from relay/power supply circuit board. | 3. Check for secondary drive vo VAC) at relay board pins J1- indicated and Steps 1 and 2 relay/power supply circuit bo proceed to Step 4. |
| | 4. No input drive voltage to E.R.C. | 4. Check for input drive voltage and J1-4 (approximately 20.3 indicated, check wiring betw supply circuit board. If volta Step 5. |
| | 5. Defective E.R.C. | If Steps 1-4 above check go |
| C. No Display - Range still operates in bake, broil, clean functions. | 1. No Secondary output filament voltage from relay/power supply circuit board. | 1. Check for secondary output relay/power supply circuit bo (approximately 3.2 VAC). If r replace relay board. If volta Step 2. |
| | 2. No filament voltage to E.R.C. | 2. Check for filament voltage (a E.R.C. J1-1 and J2-2. If no v wiring between E.R.C. and r is indicated, proceed to Step |
| | 3. Defective E.R.C. | 3. If Steps 1 and 2 check good |

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| D. Dim Display - Range may or may not operate. | 1. Low supply voltage to range. | 1. Check input voltage at wall ( should be 102 - 132 VAC). I VAC, contact power compar voltage checks good, proce |
| | 2. Low input voltage to relay/power supply circuit board. | Check for 102 - 132 VAC at terminals E1 and E2. If votla connections to terminals E1 good, proceed to Step 3. |
| | 3. Low relay/power supply secondary output voltages. | 3. Check for 3.2 VAC at relay/p and J1-8, and for 20.3 VAC a pins J1-5 and J1-6. If either relay/power supply circuit bo proceed to Step 4. |
| | 4. Low input voltages to E.R.C. | Check for 3.2 VAC at E.R.C. 20.3 VAC at E.R.C. pins J1-3 low, check for loose connec voltages check good, proce |
| | 5. Defective E.R.C. | If Steps 1 through 5 check g |

# TROUBLE SHOOTING GUIDE

## Electronic Range Control (ERC) (Models w/Two Piece Control)

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| E. Display operates normally. Bake or broil relays do not operate. | 1. Open ground wire for E.R.C. relay drive return or relay board relay drive return. | 1. Check continuity of green gr and relay/power supply boar If no continuity, repair or rep good, proceed to Step 2. |
| | 2. No E.R.C. relay drive voltage. | Check for 24 VDC drive volt when E.R.C. is programmed Check bake relay drive votla J1-5. Check broil relay drive anf J1-5. If no voltage is ind voltage is indicated, proceed |
| | 3. No relay drive voltage to relay/power supply circuit board. | 3. Check for 24 VDC relay driv E.R.C. is programmed for ba bake relay drive voltage at re Check broil relay drive voltag J1-2. Check broil relay board no voltage is indicated proce |
| | 4. Open bake/broil relay coil. | Check bake/broil relay coil f wire leads from relay board t ohmmeter to the terminals. ( board terminals J1-1 and J1- relay board terminals J1-3 ar be approximately 560 ohms. relay board. |

# TROUBLE SHOOTING GUIDE

## Electronic Range Control (ERC) (Models w/Two Piece Control)

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| F. "DOOR" appears in display when E.R.C. is programmed for bake or broil. | 1. Door latch is set to far right or clean positon. | 1. Door latch should be set to f bake or broil functions. |
| | 2. Shorted door latch switch wire or shorted latch switch. | Check for shorted latch switc ground. If continuity is indic switch contacts to determine switch). If no continuity is in |
| | 3. Defective E.R.C. | If Steps 1 and 2 above chec |
| G. "LOCK" appears in display when oven is not programmed and at room temperature. | 1. Oven temperature sensor resistance too high. | 1. Disconnect temperature sen sensor resistance. At room t should be 1091 ± 5.5 ohms. indicated, replace sensor. If check wire harness resistan connections. Each harness (0) ohms. If resistance is ind If wire harness and sensor c 2. |
| | 2. Defective E.R.C. | 2. If wire harness and sensor c replace the E.R.C. |
| H. Oven temperature display does not increment to set temperature during preheat. Oven element operates but not cycle. | 1. Sensor resistance too low or not changing with temperature rise. | 1. Defective oven temperature plug and attach ohmmeter le Resistance at room temperat approximately 1091 ohms. A using a hair dryer or heat gu should increase with sensor t resistance does not increase resistance increases procee |
| | 2. Defective E.R.C. | If sensor checks good in Ste |

**⚠ WARNING**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

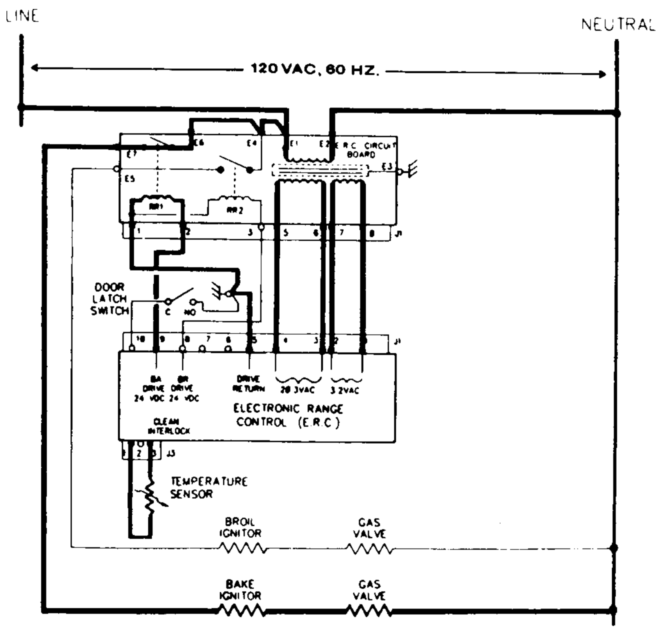



Figure 41 - Bake/Timed Bake Circuit

Bake burner is cycled by RR1 (K2) relay which is controlled by varying temperature sensor resistance.

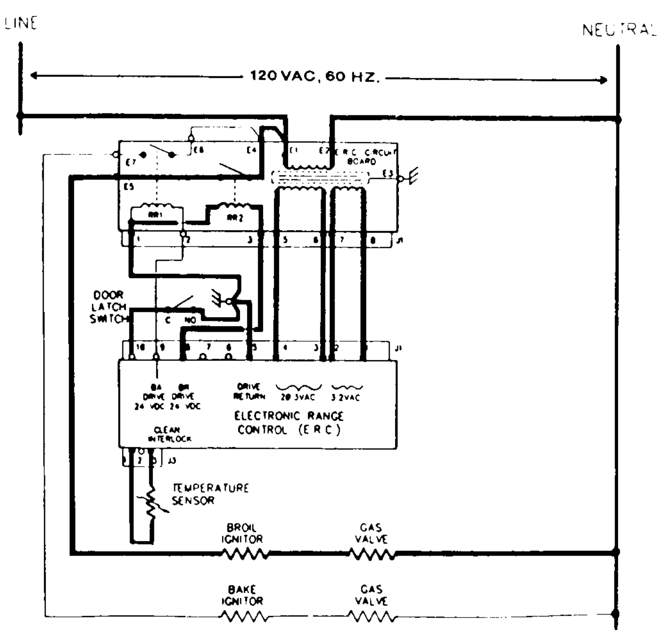



Figure 42 - Clean Cycle - Phase I

Broil burner operates first 30 minutes of clean cycle.

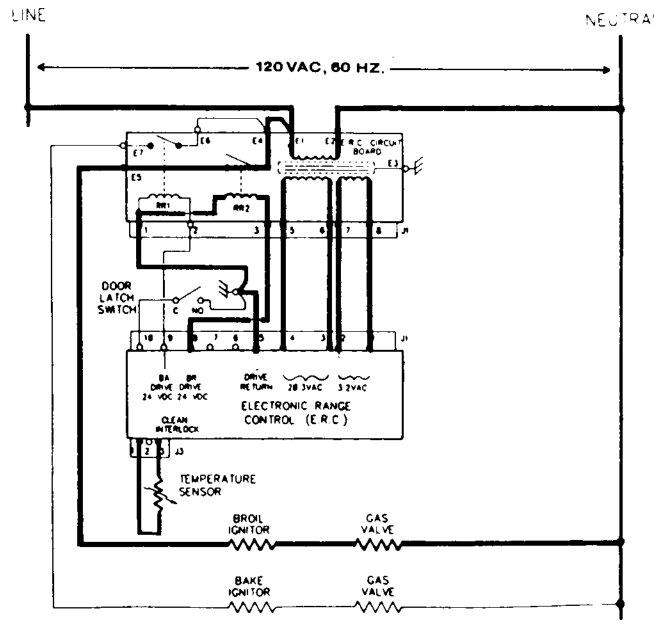



Figure 43 - Lo/Hi Broil Circuit

Broil burner is cycled by RR2 (K3) relay which is controlled by varying temperature sensor resistance.

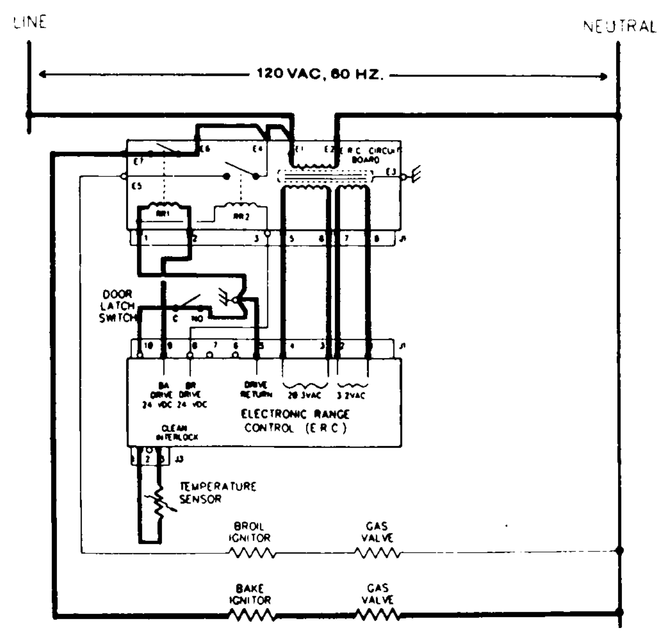



Figure 44 - Clean Cycle - Phase II

Bake burner operates thirty (30) minutes into clean cycle. Burner is cycled by RR1 (K2) relay which is controlled by varying temperature sensor resistance.

**OPERATING INSTRUCTIONS FOR THE ELECTRONIC RANGE CONTROL (ERC)**
**NOTE: One Piece Control**

The Electronic Range Control (ERC) controls all thermostat, selector switch, and clock timing functions for BAKE, TIMED BAKE, BROIL, and SELF-CLEAN operations. The ERC also has a minute timer function which can time an operation up to nine (9) hours and fifty (50) minutes. The minute timer does not control the oven operation.

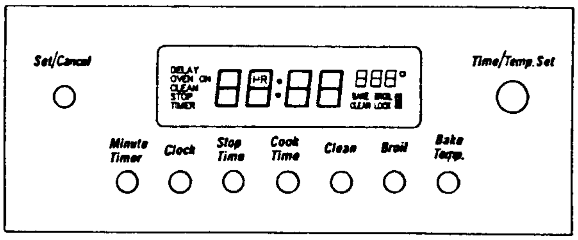



Figure 45 - Electronic Range Control - ERC

**To Set Time of Day:**

1. Press the "CLOCK" button. "TIME" will appear on the left side of the display.

2. Rotate the "TIME/TEMP. SET" knob to the desired time of day.

3. Press the "SET/CANCEL" button to initiate the time of day clock. "TIME" will go out on the left side of the display. **NOTE:** If the "SET/CANCEL" button is not pressed after the desired time of day is set, the ERC will automatically initiate the time of day after a short period of time.

**To Set Minute Timer:**

1. Press the "MINUTE TIMER" button. "TIMER" and ":00" will appear on the display.

2. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired timing period up to nine (9) hours and fifty (50) minutes. The display will increment in five (5), ten (10), and sixty (60) second and five (5) and ten (10) minute increments. The ERC will automatically initiate the timer countdown two (2) seconds after the last entry. The timer will count down in seconds if the entered time is one hour or less. If the entered time is more than one hour the timer will count down in minutes until reaching one hour on the display, then the timer will count down in seconds for the remaining time.

   When the timer counts down to ":00", an alarm will sound three (3) times to indicate that the timing function is completed. Press the "MINUTE TIMER" button or the "SET/CANCEL" button to cancel the timer function. If the timer function is not cancelled, the alarm will sound approximately once every ten (10) seconds as a reminder to cancel the minute timer function.

   To cancel the minute timer function while the timer is still counting down, simply rotate the "TIME/TEMP. SET" knob clockwise until ":00" is displayed. The ERC will automatically cancel the timer function.

**To Use the Bake Function:**

1. Press the "BAKE TEMP." button. "BAKE" will appear along with the three (3) center horizontal segments and the degree (°) symbol in the temperature display.

2. Rotate the "TIME/TEMP. SET" knob to the desired baking temperature from 170°F. to 550°F. The display will increase in five (5°) increments starting from 170°. The ERC will automatically initiate the bake operation approximately two (2) seconds after the last temperature entry and "ON" will appear in the display. The oven temperature rise will be displayed during oven preheat in 5°F. increments starting at 100°F.

   To cancel the bake function, simply press the "SET/CANCEL" button or rotate the "TIME/TEMP. SET" knob counterclockwise until the temperature display shows the three (3) center horizontal segments and the degree (°) symbol. The ERC will then automatically cancel the bake function.

**To Use the Cook Time Function:**

1. Press the "COOK TIME" button. "TIME", "OVEN", and ":00" will be displayed.

2. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired amount of cooking time up to eleven (11) hours and fifty-five (55) minutes. The display will increase in five (5) and ten (10) minute increments.

3. Press the "BAKE TEMP." button. "BAKE" will appear along with the three (3) center horizontal segments and the degree (°) symbol in the temperature display. If the "BAKE TEMP." button is not pressed within approximately five (5) seconds after setting the cook time, an alarm will sound as a reminder to set the bake temperature.

4. Rotate the "TIME/TEMP. SET" knob clockwise to the desired baking temperature from 170°F. to 550°F.

The display will increase in 5° increments starting from 170°F. The ERC will automatically initiate the timed cook function approximately two (2) seconds after the last temperature entry and "ON" will appear on the display. The oven temperature rise will be displayed during oven preheat in 5° increments starting at 100° F. When the timed cook function is completed the ERC will automatically turn the oven off and an alarm will sound three (3) times. The display will then show the time of day.

To change the cook time or baking temperature while the oven is operating in the timed cook function, simply press the appropriate button for the function to be changed (COOK TIME or BAKE TEMP.) and then rotate the "TIME/TEMP. SET" knob to set the new time or temperature.

To cancel the timed cook function before it is completed, simply press the "SET/CANCEL" button or rotate the "TIME/TEMP. SET" knob counterclockwise until cooking time display shows ":00", or until the temperature display shows the three (3) center horizontal segments and the degree (°) symbol. The ERC will then automatically cancel the timed cook function.

**To Use the Stop Time Function:**

1. Press the "STOP TIME" button. "STOP TIME" will appear in the display.

2. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired stop time or time the oven is to shut off up to eleven (11) hours and fifty-nine (59) minutes after the time of day depending on the current time of day programmed into the ERC. The display will increase in five (5) minute increments.

3. Press the "BAKE TEMP." button. "BAKE" will appear along with the three (3) center horizontal segments and the degree (°) symbol in the temperature display. If the "BAKE TEMP." button is not depressed within approximately five (5) seconds after setting the stop time, an alarm will sound as a reminder to set the bake temperature.

4. Rotate the "TIME/TEMP. SET" knob to set the desired baking temperature from 170°F. to 550°F. The display will increase in 5° increments starting from 170°F. The ERC will automatically initiate the baking function approximately two (2) seconds after the last temperature entry and "ON" will appear in the display. The oven will operate until the stop time is reached. At that time the ERC automatically turns the oven off and an alarm will sound three (3) times. The display will then show the time of day.

   To change the stop time or baking temperature while the oven is operating in the stop time function, simply press the appropriate button of the function to be changed (STOP TIME or BAKE TEMP.) and then rotate the "TIME/TEMP. SET" knob to set the new stop time or temperature. To cancel the stop time function before it is completed, simply press the "SET/CANCEL" button.

**To Use Stop Time for Delayed Baking Function:**

1. Press the "STOP TIME" button. "STOP TIME" and the current time of day will be displayed.

2. Rotate the "TIME/TEMP. SET" knob clockwise to the time the oven is to turn off. The display will increase in five (5) minute increments.

3. Press the "COOK TIME" button. "OVEN", "TIME", and the "CALCULATED COOK TIME" will be displayed.

4. Rotate the "TIME/TEMP. SET" knob to enter the amount of time to bake. The display will decrease in five (5) or ten (10) minute decrements depending on the programmed stop time and the time of day. "DELAY" will appear in the display.

5. Press the "BAKE TEMP." button. "BAKE" will appear along with the three (3) center horizontal segments and the degree (°) symbol in the temperature display. If the "BAKE TEMP." button is not pressed within approximately five (5) seconds after setting the cook time an alarm will sound as a reminder to set the bake temperature.

6. Rotate the "TIME/TEMP. SET" knob to desired baking temperature from 170° to 550°F. The ERC will automatically calculate the start time. When the start time is reached, "DELAY" will turn off and "ON" time is reached. The ERC will then automatically turn the oven off, an alarm will sound three (3) times and ":00" will be displayed.

7. Press the "SET/CANCEL" button to cancel the timed function.

**To Set Broil Function:**

1. Press the "BROIL" button. "BROIL" will appear along with three (3) center horizontal segments in the temperature display.

2. Rotate the "TIME/TEMP. SET" knob clockwise to set the broil function to HI.

   To cancel the broil function, simply press the "SET/CANCEL" button or rotate the "TIME/TEMP. SET" knob counterclockwise until the three (3) center horizontal segments appear on the temperature display. The ERC will then automatically cancel the broil function.

**To Set for Self-Clean:**

1. Move the door lock lever to the far right or latched position. "LOCK" will appear on the display.

2. Press the "CLEAN" button. "CLEAN" will appear and "----" will show on the display. Rotate the "TIME/TEMP" knob four (4) detents clockwise and display will indicate "3:00" hour cleaning time. This can be changed from two (2) hours to four (4) hours depending on amount of soil in oven (three (3) hours is preferable). "CLEAN" display will appear to end of clean time selected. "LOCK" will appear until the door is unlatched which should be twenty (20) to thirty (30) minutes after "clean" display has turned off and oven has cooled down.

3. After oven cool down move door lock lever to far left or unlatched position. If door can not be unlatched wait another five (5) minutes. DO NOT FORCE THE LATCH AS DAMAGE MAY RESULT.

**To Set for Delayed Self-Clean:**

1. Move the door lock lever to the far right or locked position. "LOCK" appears on the display.

2. Press the "STOP TIME" button. "STOP TIME" and the current time of day will be displayed.

3. Rotate the "TIME/TEMP. SET" knob clockwise to set the desired time the oven is to turn off.

4. Press the "CLEAN" button. "DELAY", "CLEAN", and "TIME" will appear. Rotate the "TIME/TEMP" button and select two (2) to four (4) hours of clean time.

   If the door lock lever is not moved to the lock position prior to pressing the "CLEAN" button, "DOOR" will be displayed and an alarm will sound as a reminder to lock the door. The ERC will automatically calculate the start time. **EXAMPLE:** Using a suggested three (3) hour clean time: If the current time is 12:00 and to operate the oven in a clean function which will end at 5:00, (1) lock the oven door, (2) set the stop time for 5:00 and, (3) select three (3) hours clean time. The ERC will start the cleaning function at 2:00 and turn the oven off at 5:00.

   When the start time is reached, "DELAY" will turn off, "ON" will appear, and the ERC will initiate the clean cycle. The "LOCK" indicator will be displayed. When the stop time is reached, the ERC will automatically turn the oven off and the time of day will be displayed. "LOCK" will remain displayed until the door is unlatched.

5. Allow the oven to cool approximately twenty (20) to thirty (30) minutes before trying to move the door lock lever to open the door. DO NOT FORCE THE LOCK LEVER. If the door will not open, wait five (5) minutes and try again.

**To Use Cancel Function:**

1. Pressing the "SET/CANCEL" button will cancel all cooking, cleaning, or timing functions except the minute timer function. The display will return to the time of day unless a minute timer operation is present.

2. To display the time of day during a program, press the "CLOCK" button. The display will return to the time of day. To view the remaining time on a program after returning the display to the time of day, simply press the appropriate function button ("MINUTE TIMER", "STOP TIME", "COOK TIME" or "CLEAN" button). The display will then show the remaining program time.

**ELECTRONIC RANGE CONTROL - ERC**

**ERC SYSTEM EXPLANATION - (One Piece Control)**

The Electronic range control - ERC - operates in conjunction with a relay/power supply circuit board and an oven temperature sensor to control all bake, timed bake, broil, and self-clean functions.

The ERC has eight (8) function buttons to control minute timer, stop time, bake, timed bake, broil, clean, and set/cancel operations, and a rotary dial to set time and temperature.

The ERC display consists of two (2) digital readouts which display the time of day, cooking time, cleaning time, minute timer time, stop time, baking temperature, broil, and failure codes as well as several indicators to show which function the ERC is controlling.

The attached relay/power supply circuit board consists of two (2) relays for bake and broil operations which are

controlled by the ERC, and a step down transformer with two (2) secondary windings which convert the 120 VAC input to 3.2 VAC filament voltage to power the ERC display and 20.3 VAC drive voltage which the ERC uses to turn on the bake and broil relays.

The oven temperature sensor is mounted in the oven cavity and is connected to the J2 connector on the rear of the ERC. As the oven temperature increases, the sensor resistance also increases. The ERC converts this resistance change to a corresponding temperature readout. The ERC then cycles the bake/broil relays to maintain the desired temperature setting.

The ERC is also capable of sensing certain failure conditions which can occur in the temperature sensor, the self-clean latch switch or the ERC itself. If the ERC senses a failure, power will be removed from the bake/broil relays, an alarm will sound, and a failure code will be displayed.

Each major component of the Electronic Range Control System (ERC, temperature sensor), and related wire harness must be tested prior to replacing the individual component.

**TESTING PROCEDURES**

**"DISPLAY" MODE -** All segments of the display can be checked by using the following sequence. **NOTE:** Clock must previously be set for the time of day.

1. Press and hold the "CLOCK" button until "TIME" is displayed and until "TIME" turns off.

2. Momentarily press "CANCEL" button until all display segments are lit. Following the lighting of all of the segments, the display will go through a "SALES DEMONSTRATION" mode, displaying individual functions. The "SALES DEMONSTRATION" mode will show: (1) "BROIL", three horizontal segments and the degree (°) symbol, (2) "OVEN", "TIME", and ":00", (3) "CLEAN", "TIME", and "3:00", (4) "TIMER" and ":00", (5) time of day, (6) all segments and, (7) "BAKE", three (3) horizontal segments and the degree symbol. The program will continue to repeat until the "CANCEL" button is pressed. The time of day should then be displayed.

**ERC FAILURE CODES AND WARNINGS**

The Electronic Range Control is capable of detecting certain failures within the ERC, the oven temperature sensor and the self-clean latch switch.

The failure codes and warnings which may appear on the display include F1 through F8, "DOOR" or "LOCK". A brief description of the failure codes and warnings is listed below:

**F1 -** Indicates a failed component in the ERC.
**F2 -** Sensor resistance too high. Check sensor resistance, wire harness, and connections.
**F3 -** Open wire lead in sensor harness, bad harness/sensor connections, or sensor resistance too high (above 3300 ohms).
**F4 -** Sensor resistance too low (below 500 ohms). Check for a short in sensor wire harness and check sensor resistance.
**F5 -** Indicates a failed component in the ERC.
**F6 -** Indicates a failed component in the ERC or due to fluctuations in 60 HZ power source.
**F7 -** Indicates a shorted or sticking contact in one or more of the function control switches. Make sure the function buttons are not binding on the control panel glass - reposition the ERC and/or glass. Make sure the function buttons spring outward after being depressed.
**F8 -** Indicates a failed component in the ERC.

**F9 -** Door Latch Supervisory (Door latched):
Sounds alarm and resets control to non-cook mode if the door latch supervisory logic fails for a sample period of 2 seconds (while the door is latched). Unlatching the door (if not locked) and Cancel Key may reset the display code and audible. If the door is locked (temp $\geq$ 500°F) power must be removed until the oven door can be unlatched.

**"LOCK" LIGHT ON -** If "LOCK" appears in the display when the oven is not set in clean mode, indicates a defective latch switch or shorted wire lead from the ERC pin J2-4 or door is latched.

**"DOOR" APPEARS IN DISPLAY IN BAKE/BROIL MODE** - This is an indication of a defective latch switch or a shorted wire lead from the ERC pin J2-4 to ground, or door is latched.

**"DOOR" APPEARS IN DISPLAY DURING CLEAN MODE** - This is an indication of a defective latch switch or an open wire lead from the ERC pin J2-4 to ground, or the door latch has not been closed as required to initiate the clean cycle.

**ELECTRONIC RANGE CONTROL TEMPERATURE CALIBRATION**

The ERC incorporates ± 35°F. calibration capabilities. Follow the procedures below to calibrate the ERC:

1. Press and release the "BAKE TEMP." function button.

2. Rotate the "TIME/TEMP. SET" knob clockwise until a temperature between 500° - 550° is displayed. Quickly, before the ERC initiates the bake function, press and hold the "BAKE TEMP." function button. After approximately four (4) seconds, the display will show "00" or the offset temperature that was previously programmed into the ERC.

3. Rotate the "TIME/TEMP. SET" knob to show the desired offset temperature in the display (up to ± 35°F. in 5° increments, "+" to set oven temperature higher and "-" to reduce oven temperature.

4. Press the "CLOCK" function button to enter the offset temperature into the ERC. The calibration adjustment will remain programmed into the ERC even if power is removed from the ERC or range. **NOTE:** Self-clean temperatures are not affected by this calibration.
   If oven temperature testing reveals that a calibration in excess of 35°F. is required, the oven temperature sensor, sensor wire harness, and wire harness/sensor connections must be checked before replacing the ERC. A resistive connection within the sensor harness will affect oven temperature calibration.

**ELECTRONIC RANGE CONTROL - Checking Input Voltage and Output Voltage**

The following information pertains to checking input voltage to operate the Electronic Range Control and output voltage from Electronic Range Control to operate bake or broil functions.

Access to Electronic Range Control is by removing rear cover of backguard or by removing backguard glass then laying control on an insulated surface for voltage testing.

**⚠ CAUTION**

**CARE MUST BE TAKEN WHEN VOLTAGE TESTING. TURN POWER OFF BEFORE ATTACHING VOLTMETER LEADS. USE ONLY WELL INSULATED METER CLIPS.**

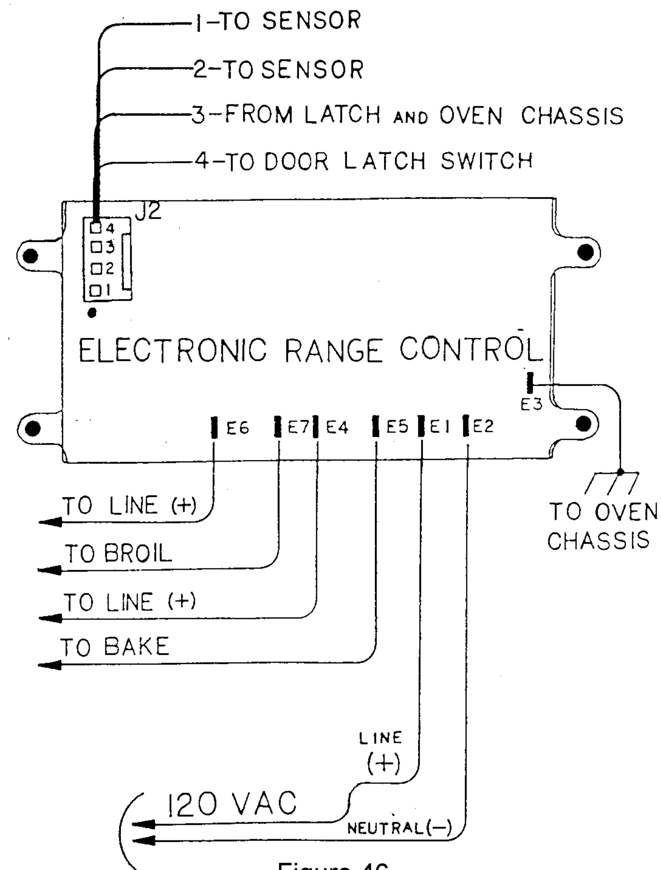


Figure 46

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

**ELECTRONIC RANGE CONTROL**
V.A.C. TEST POINTS

1. E2 to E1 - 120 VAC input to ERC Circuit Board
2. E2 to E6 - 120 VAC input for K2 Broil Relay
3. E2 to E4 - 120 VAC input for K3 Bake Relay

Resolve any voltage problem before continuing.

4. Disconnect wire from E5 on Circuit Board. Program ERC for bake and select any temperature. 120 VAC should be present (E2 - E5). Reconnect wire to E5.

5. Disconnect wire from E7 on Circuit Board. Program ERC to HI Broil. 120 VAC should be constantly present (E2 - E7).

   Reconnect wire to E7.

Replace Electronic Range control if Input/Output 120 VAC cannot be obtained in Steps 1 through 5 on ERC Circuit Board Test.

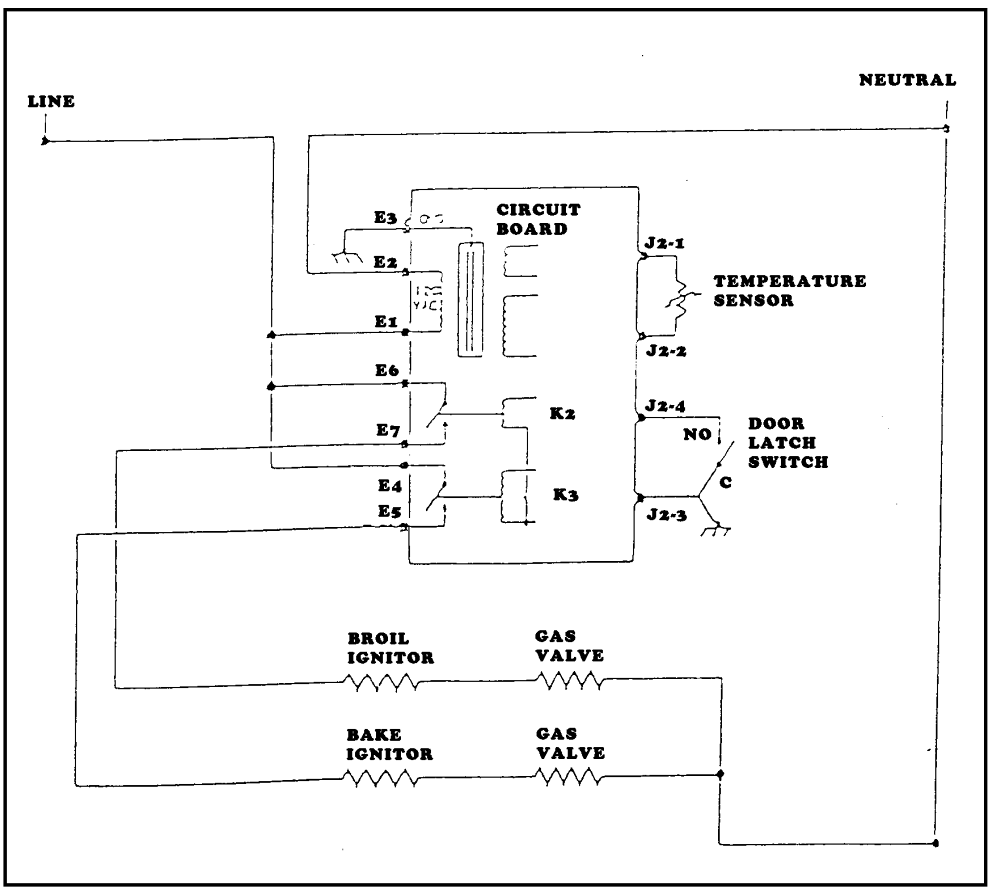



Figure 47

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

### DOOR LATCH SWITCH CIRCUITRY TEST USING J2 CONNECTOR ON ELECTRONIC RANGE CONTROL

1. Disconnect the four (4) pin in-line connector from J2 on circuit board.
   A. Continuity should be indicated J2 Pin 3 to range chassis.
   B. Continuity should be indicated J2 Pin 3 to J2 Pin 4 with door latched. No continuity (open circuit) with door unlatched.

Check door latch switch, wiring integrity according to appropriate wiring diagram.

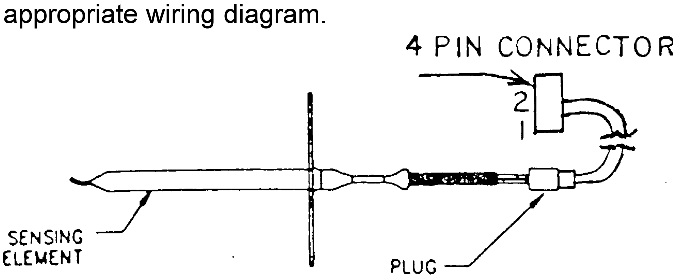



Figure 48

### OVEN TEMPERATURE SENSOR TEST USING J2 CONNECTOR ON ELECTRONIC RANGE CONTROL

1. Disconnect the four (4) pin in-line connector from J2 on circuit board.

2. Check for short to ground from Pin 1 to range chassis. Check for short to ground from Pin 2 to range chassis. If no short to ground, proceed to Step 3.

   If short to ground is indicated then repeat test on sensor plug - replace oven sensor or wire harness as required.

3. A resistance reading can be checked across Pin 1 to Pin 2 of 4 Pin connector. A resistance reading of approximately 1091 ohms should be indicated at ambient room temperature (75°F.). If a higher or lower resistance is indicated disconnect the sensor plug and recheck sensor resistance to assure that the problem is in the sensor and not in interconnect harness or due to a bad connection.

   The following table shows the corresponding resistance for different oven temperatures.

| SENSING ELEMENT TEMPERTURE | SENSING RESISTANCE |
|---|---|
| 75°F | 1091 ± 5.5 OHMS |
| 350°F | 1654 ± 11 OHMS |
| 535°F | 2018 ± 16 OHMS |
| 875°F | 2652 ± 24 OHMS |

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

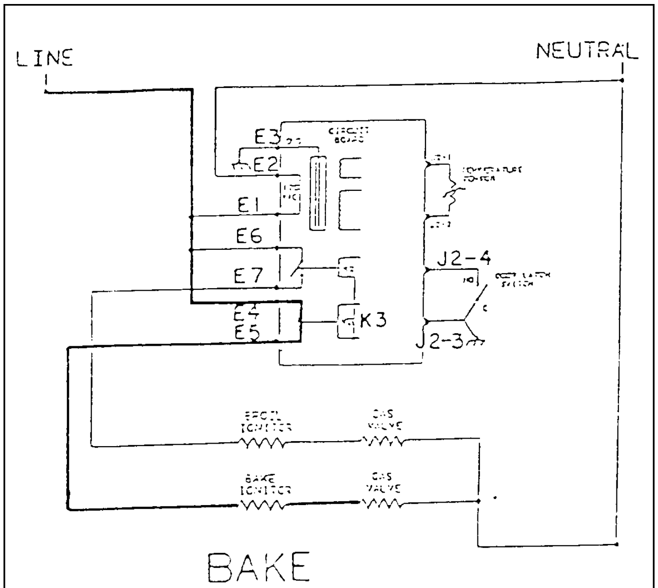



Figure 49
Bake burner is cycled by K3 relay which is controlled by varying temperature sensor resistance.

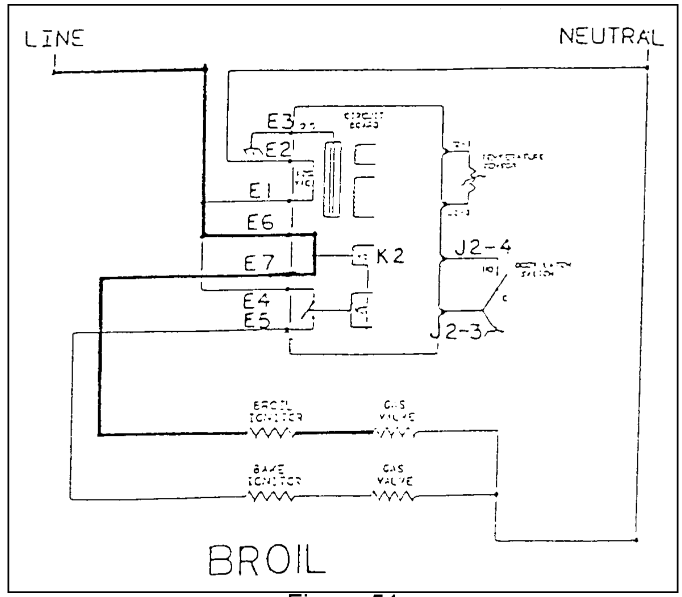



Figure 51
Broil burner is on 100 percent of time.

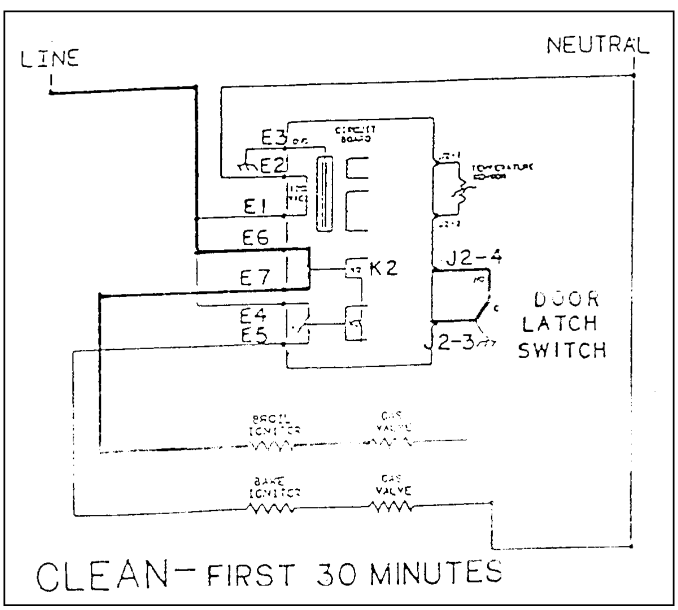



Figure 50
Broil burner operates first thirty (30) minutes of clean cycle.

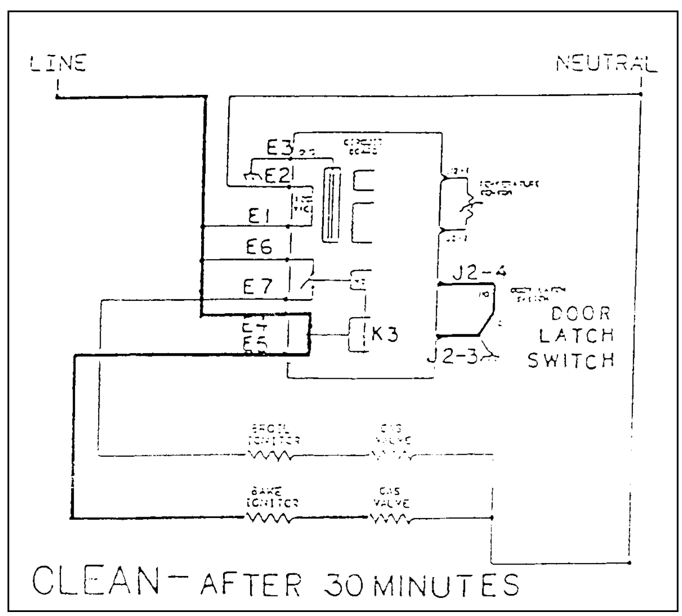



Figure 52
Bake burner operates thirty (30) minutes into clean cycle. Burner is cycled by K3 relay which is controlled by varying temperature sensor resistance.

# TROUBLE SHOOTING GUIDE

## Electronic Range Control - (ERC) (Models w/One Piece Control)

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| A. Display flashes the Time-of-Day | 1. Power failure. | 1. This is a normal condition wh<br>Press the "CLOCK" button a |
| B. No Display - E.R.C. totally inoperative | 1. No power to range. | 1. Check house fuse or circuit l<br>wall outlet or junction box. |
| | 2. No voltage to relay/power supply circuit board. | 2. Check for 120 VAC at circuit<br>If no voltage is indicated, ch<br>indicated, replace E.R.C. |
| C. No Display - Range still operates in bake, broil, clean functions. | 1. Defective E.R.C. | 1. Replace E.R.C. |
| D. Dim Display - Range may or may not operate | 1. Low supply voltage to range. | 1. Check input voltage at wall o<br>should be 108 - 132 VAC). I<br>VAC, contact power compar<br>voltage checks good, proce |
| | 2. Low volatge to E.R.C. | Check for 108 - 132 VAC to<br>E2.<br><br>If voltage is low, check wirin<br>terminals E1 and E2. |
| | 3. Defective E.R.C. | If Steps 1 and 2 check good |
| E. Display operates normally. Bake or broil relays do not operate. | 1. Open bake/broil relay coil. | 1. If Bake/On or Broil/On appe<br>VAC from terminals E2 to E4<br>terminals E2 to E6 and E7 fc<br>E4/E6 then resolve loss of p<br>E7 or E5 replace E.R.C. |

# TROUBLE SHOOTING GUIDE

## Electronic Range Control - ERC (Models w/One Piece Control)

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| F. "LOCK" appears in display and bake or broil cannot be programmed and oven is at or near room ambient termperature. | 1. Door latch is set far right or clean position.<br>2. Shorted door latch switch wire or shorted latch switch.<br>3. Defective E.R.C. | 1. Door latch should be set to bake or broil functions.<br>Check for shorted latch swit J4 to ground. If continuity is latch switch contacts to det or switch). If no continuity i 3.<br>If Steps 1 and 2 above chec |
| G. "DOOR" appears in display when oven is programmed for Clean. | 1. Door latch is set in far left or unlatch position.<br>2. Open door latch switch or open latch switch wire.<br>3. Defective E.R.C. | 1. Door latch should be set in clean function.<br>2. Latch door then check for o J4. If open circuit is indicat wiring. Repair/replace com<br>3. If steps 1 and 2 above chec |
| H. Oven temperature display does not increment to set temperature during preheat. Oven burner operates but does not cycle. | 1. Sensor resistance too low or not changing with temperature rise.<br>2. Defective E.R.C. | 1. Defective oven temperature plug and attach ohmmeter l pins. Risistance at room ter approximately 1091 ohms. sensor using a hair dryer or resistance should increase rise. If sensor resistance d sensor. If resistance increa<br>If sensor checks good in Ste |

## AUTOMATIC ELECTRONIC TIMER

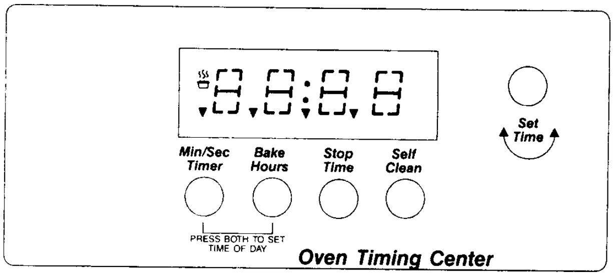



**Figure 53 - Solid State Digital Timer**

## AUTOMATIC ELECTRONIC TIMER

The electronic timer featured in certain models provides full automatic timing of bake/roast or self-clean oven operation by means of two (2) relay-operated S.P.S.T. switches which are normally open, contact 11-12 and 13-14. 120 VAC power is connected to terminals 1 and 2. The numeric value of the 4-digit display can be increased by clockwise rotation of the "TIME SET" knob and decreased by counterclockwise rotation. All knobs are removable by pulling straight out.

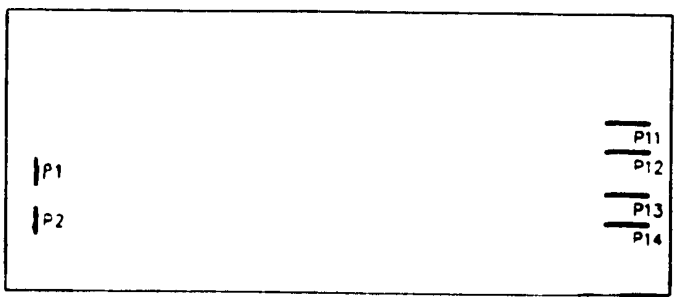



Figure 54 - Rear View - Partial

Indicator arrows (LED) are aligned over each of the four (4) push button function knobs and associated with that function. Each indicator arrow is lighted during operation of that function and goes off at the end of that function. With the exception of the self-clean button, pressing in any one of the three (3) buttons on the left lights the respective indicator arrow which then allows only three (3) or four (4) seconds to set the time on the display, then the display reverts to time-of-day if nothing is entered. To set time-of-day in the display, simultaneously press in the "MIN/SEC" and "BAKE HOURS" buttons while rotating the "SET TIME" knob to the time-of-day. The time-of-day clock has no AM and PM indicator.

## OPERATING INSTRUCTIONS - AUTOMATIC ELECTRONIC TIMER

When electrical power is initially applied to the range (or after a power outage) the display will alternately flash "88:88" and "Ñ". "Ñ" (the two (2) left most arrows) until the time-of-day is set. No other clock function can be programmed until a time-of-day is set.

### To Set Time of Day:

1. Press the "MIN/SEC. TIMER" and "BAKE HOURS" buttons simultaneously while rotating the "SET TIME" knob to correct time of day. Display shows "HRS.:MIN.".

   The display will return to the time-of-day when the displayed timed function cycles out.

   Time-of-day can be displayed at any time by pressing and holding the two (2) left most buttons.

   Time-of-day cannot be changed when any timed function is active which may require a knowledge of time-of-day (exception: Minute Timer).

### To Set the Minute Timer:

1. Momentarily push the "MIN/SEC. TIMER" button. Rotate the "SET TIME" knob clockwise to the desired time, in "MIN.:SEC.". The setting range is from 0:00 to 99:00 minutes.

   Countdown will begin four (4) seconds after the time has been set, with the "MIN./SEC. TIMER" arrow displayed. The alarm will sound at the end of the countdown, 1/2 second ON, 1/2 second OFF, for one (1) to two (2) minutes. Momentarily pressing any one of the three (3) left most buttons will turn off the alarm. The time-of-day will be displayed at the end of the countdown.

   Minute Timer can be cancelled at any time by setting the remaining time to "0:00".

   Minute Timer can be used concurrently with any other operating mode.

### To Program Oven for Timed Bake Operation

Oven starts at once and shuts off at end of cooking cycle:

1. Set the selector switch to "AUTO".

2. Set the oven control to the desired baking temperature.

3. Momentarily press the "BAKE HOURS" button until "Ñ" and "0:00" are displayed. Rotate the "SET TIME" knob clockwise to the desired amount of baking time. The setting range is from one (1) minute to eleven (11) hours, fifty-nine (59) minutes.
   During cooking: " ", "Ñ" (BAKE HOURS) and the time remaining (HOURS:MINUTES) will be displayed. A flashing stop time arrow "Ñ" will also be displayed. The cook time can be changed at any time by rotating the set time knob to the desired amount of baking time. **NOTE:** The oven has a separate oven indicator (neon) which will cycle on whenever the oven thermostat is calling for heat.

   The alarm will sound at the end of the cooking period, one (1) second ON / one (1) second OFF, for one (1) to two (2) minutes and the oven will turn off. Momentarily pressing any one (1) of the three (3) left most buttons will turn off the alarm before the one (1) to two (2) minutes is up.

4. After cooking cycle is over, set selector switch to "MANUAL" and the oven control to "OFF".

**To Program the Oven for Delayed Time Bake**

Oven starts at a later time and shuts off at the end of the cooking cycle.

1. Set selector switch to "AUTO".

2. Set the oven control to the desired baking temperature.

3. Momentarily press "BAKE HOURS" button until "Ñ" and "0:00" are displayed. Rotate the set time knob clockwise to the desired amount of baking time. The setting range is from one (1) minute to eleven (11) hours, fifty-nine (59) minutes. **NOTE:** The oven will now turn on until the stop time is set.

4. Momentarily press the "STOP TIME" button. The display will show the end of the cook period if no delayed start is selected (present time of day).

5. Rotate the "SET TIME" knob clockwise to set the desired stop time. The stop time can be set up to eleven (11) hours and fifty-nine (59) minutes from the present time of day.

   During the delay period the cookpot, " " will remain off. At the appropriate start time (stop time minus set cook time) the cookpot " " will light and the range will cook up to the programmed stop time.

   Momentarily pressing the "BAKE HOURS" button will display the remaining cooktime.

   The alarm will sound at the end of the cooking period.

6. After the cooking cycle is over, turn the selector switch to "MANUAL" and the oven control to "OFF".

**To Set Alarm Clock Feature:**

1. Press "STOP TIME" button. "STOP TIME" arrow will be displayed and "BAKE HOURS" arrow will flash. Set stop time to desired alarm time.

2. Momentarily press "BAKE HOURS" button. "0:00" and "BAKE HOURS" arrow will be displayed. "STOP TIME" arrow will flash signalling the alarm feature is programmed. The display will then return to the time of day.

   The alarm will sound at the programmed stop time.

   To cancel the alarm function, press the "STOP TIME" button and rotate the "SET TIME" knob until "0:00" is displayed.

**To Program the Oven for Self-Clean:**

1. Set the selector switch to "AUTO".

2. Turn the oven control knob counterclockwise until it stops ("CLEAN - TURN TO STOP" position).

3. Move the latch lever from the left (COOK) position to the right (CLEAN) position. The clean indicator will come on.

4. To set the timer, momentarily press the "SELF-CLEAN" button. The display will show " ", "C3:00", flashing STOP TIME arrow, and solid SELF-CLEAN arrow, indicating a 3:00 hour cleaning duration, to start immediately. The oven indicator will come on to signal the beginning of the clean cycle.

   The cleaning duration can be changed from "C3:00" up to "C4:00" and down to "C0:00" (i.e., OFF), by rotating the set time knob while displaying the clean mode.

   Delayed cleaning can be programmed by momentarily pressing the "STOP TIME" button and rotating the "SET TIME" knob to desired stop time up to eleven (11) hours, fifty-nine (59) minutes from the present time of day.

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

5. At the end of the clean cycle the oven will turn off and the timer will display the time of day. No alarm will sound.

6. After the clean cycle, turn the selector switch to "MANUAL" and the oven control to "OFF".

   The oven door can be opened approximately thirty (30) minutes after the completion of the clean cycle. Do not attempt to open the oven door latch until approximately thirty (30) minutes have elapsed, otherwise the door lock mechanism may be damaged. DO NOT FORCE THE LATCH HANDLE. If the door will not open, wait five (5) minutes and try again.

   If a set button is pressed and the "SET TIME" knob is not rotated within four (4) seconds, the display will return to the time-of-day (except for SELF-CLEAN button).

**TIMER TESTING**

The electronic digital timer can be tested operationally and electrically.

**OPERATIONAL TEST**

This test procedure requires power applied (120 VAC) either in the range or with 120 VAC line cord connected to terminals 1 and 2 for bench test. An ohmmeter or continuity tester should be alternately connected across switch terminals 11 to 12 and 13 to 14. Disconnect wire leads from terminals 11 to 12 and 13 to 14.

1. Press the three (3) left hand buttons simultaneously. Each element of the display should momentarily light in sequence followed by momentary four (4) zeros and then four (4) eights and two (2) arrows flashing. Ohmmeter checks across switch contacts 11 to 12 and 13 to 14 should indicate open switches (infinite or very high ohms). Ohmmeter should be on RX 1 range.

2. Reset time-of-day on display (press in two (2) left buttons and turn "TIME SET" knob). Push in minute timer button (far left) and program five (5) to ten (10) seconds in display. Timer switches should indicate open condition on ohmmeter. Alarm buzzer should sound at the end of the countdown. Push minute minder button to stop the alarm.

3. Connect the ohmmeter set to RX1 range across either timer switch 11 to 12 or 13 to 14. Press in the "BAKE" button and hold. Meter should indicate open switch (infinite or very high ohms). While holding button in, set approximately one (1) minute on the display. Meter needle should swing to zero (0) ohms indicating switch closed. Repeat the procedure after transferring the test leads to the other switch. Allow countdown to complete, buzzer should sound. Push button in to silence buzzer. Display should return to time of day.

4. With ohmmeter connected across one (1) of the switches and set to RX1 range, push in the "STOP" button and program time of day plus ten (10) minutes. Meter should indicate switches are open. Push in "BAKE TIME" button - switches should still remain open. With "BAKE TIME" button held in, program five (5) minutes. Switches should still show open condition. Allow timer to countdown, oven should start (switches close) in five (5) minutes. After five (5) more minutes switches should open, display indicates time of day and alarm sounds. Press bake button to silence alarm.

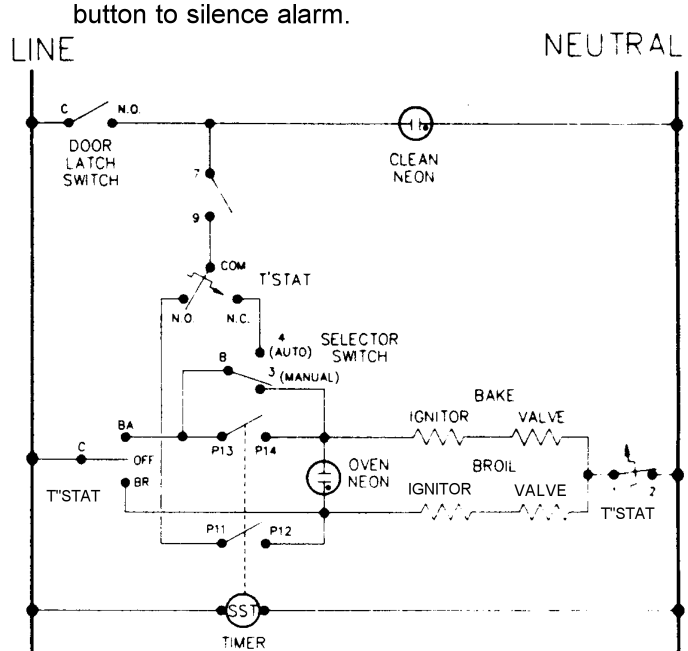



Figure 55 - Electronic Timer Switch Circuit

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

| CLOCK TIMER | | |
|---|---|---|
| FUNCTION | 11-12 | 13-14 |
| MANUAL | 0 | 0 |
| DELAY IN AUTO | 0 | 0 |
| COOKING IN AUTO | X | X |
| AUTO COMPLETE | 0 | 0 |
| O = OPEN X = CLOSED | | |

Timer Switching Schedule

5. Push self-clean button in. The following should take place immediately - three (3) hours (3:00) should appear in the display, the letter "C" should appear on the left side of the display, the oven-on symbol should also appear on the left and both switches should be closed. Manually, with "TIME SET" control, turn the digital display down to one (1) minute. Allow the timer to countdown to 0:00. Display should return to time of day and the switches open. **NOTE:** A slight "click" can be heard whenever the relay switches open or close.

### OPERATING INSTRUCTIONS FOR COOK AND OFF CLOCK TIMER

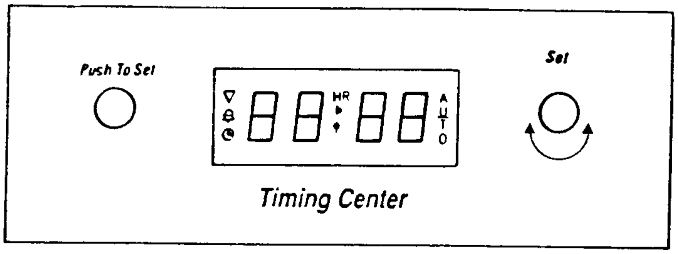



Figure 61

### SETTING THE CLOCK AT POWER-UP

When electrical power is first applied to the range, or after a power interruption exceeding the capability of the clock, the display will flash "88:88" with no indicator words or symbols being on or flashed. The display reading of "88:88" will flash until the clock is set unless timer is set. The flash rate of the display will be one (1) second "ON" and one (1) second "OFF".

The "TIME-OF-DAY" is set initially by rotating the set knob clockwise or counterclockwise three (3) to four (4) steps. "12:00" and the symbols "∇" and "◷" will be displayed.

The "TIME-OF-DAY" may be entered by rotating the set knob clockwise or counterclockwise as necessary. If the clock is not set within four (4) seconds, the symbols will go out and the clock will start keeping time at "12:00".

### SETTING THE CLOCK
### To Change Current Time:

The Time-of-Day setting may be changed any time (unless the timer is counting down) by rotating the set knob clockwise or counterclockwise causing the symbols "∇" and "◷" to light. Continue to rotate the knob to set.

When time entry has stopped for a period of approximately four (4) seconds the symbols "∇" and "◷" will go out and the clock will start keeping time.

### USING THE MINUTE TIMER

The Minute Timer Function can be selected at any time unless the auto timer is in operation, by pushing the set button once. The symbols "∇" and "🔔" will light and the display will show ":00". The Minute Timer "TIME" can be entered at this time by rotating the set knob. Up to nine (9) hours, fifty (50) minutes can be set, with minutes/seconds displayed up to sixty (60) minutes, and hours/minutes and "HR" displayed above one (1) hour.
The display will increase in five (5) second, ten (10) second, one (1) minute, five (5) minute, and ten (10) minute increments, depending on the amount of time programmed into the timer. Four (4) seconds after the last time entry, the Minute Timer starts counting down with the symbol "🔔" in the display.

When the Minute Timer has timed out to zero, the display will show ":00", "" will go out, and the "END OF CYCLE" tone will sound one (1) second "ON", one (1) second "OFF", for a period of six (6) seconds (three (3) tones). The display will then return to the "TIME-OF-DAY" or to flashing "88:88" if the time-of-day has not been set.

To cancel the Minute Timer action prior to time-out, the Minute Timer "TIME" setting must be changed to zero.

While the Minute Timer is counting down the Time-of-Day is displayed by depressing the set button one time. The Time-of-Day will be displayed with no words/symbols indicators on and the Minute Timer "TIME" counting down in the background. The Time-of-Day is displayed until the set button is depressed or until the timer has timed out.

If the set button is depressed again one time the Clock/ Timer changes back to displaying the Minute Timer setting. If the Minute Timer has timed out to zero (0) while the Time-of-Day is being displayed, the display acts in the normal "END OF CYCLE" mode.

To change the Time-of-Day during a Minute Timer Function, press the set button once to display the Time-of-Day. Rotate the set knob to the desired time of day.

### USING THE AUTO TIMER

This timer is used in conjunction with the oven's Timed Bake or Self-Clean functions to automatically turn off the oven when the timer counts down to zero. **NOTE:** The oven start time can not be delayed with this timer.

The Auto Timer function can be selected at any time, unless the Minute Timer is in operation, by pushing the set button two (2) times. The symbols "∇" and "🔔" and the word "AUTO" will light and the display will show ":00".

The Auto Timer "TIME" can be entered at this time by rotating the set knob. Up to nine (9) hours, fifty (50) minutes can be set, with minutes/seconds displayed up to sixty (60) minutes, and hours/minutes and "HR" displayed above one (1) hour. Four (4) seconds after the last time entry, the Minute Timer starts counting down with the symbol "🔔" and the word "AUTO" in the display.

While the Auto Timer is counting down in minutes/seconds or in hours/minutes the Time-of-Day can be presented by depressing the set button one time. The "Time-of-Day" will be displayed with the word "AUTO" indicators on and the auto Timer "TIME" counting down in the background. The Time-of-Day is displayed until the key is depressed again. If the key is depressed, the clock/timer changes back to displaying the Auto Timer setting counting down in hours/ minutes or minutes/ seconds.

To change the Time-of-Day during an automatic timed bake function, press the set button to display the Time-of-Day. Rotate the set knob to the desired time of day.

When the Auto Timer has timed out to zero, the display will show ":00" and the word "AUTO". The "END OF CYCLE" tone will sound three (3) times even if the Time-of-Day is displayed. "AUTO" and ":00" will turn off and the "TIME-OF-DAY" will be displayed. If the oven is being controlled by the timer (i.e. Timed Bake or Self-Clean) the oven will turn off.

**TO PROGRAM OVEN FOR TIMED BAKE**

1. Set the selector knob to the "AUTO" position.

2. Turn the oven control to the desired baking temperature.

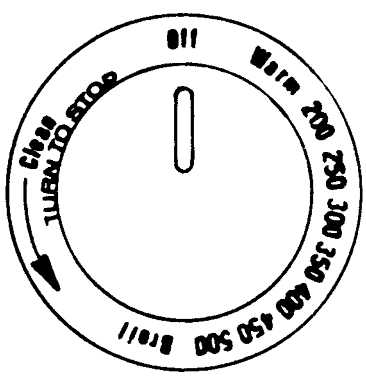



Figure 62 - Oven Control Knob

3. Set cooking hours using Auto Timer instructions. To cancel the timed bake function, simply rotate the set knob counterclockwise until the display reads ":00". After the timed bake function has ended, turn the selector to "MANUAL" and the oven control to "OFF".

**TO PROGRAM THE OVEN FOR SELF-CLEAN**

1. Set the selector knob to the "AUTO" position.

2. Turn oven control knob counterclockwise until it stops ("CLEAN - TURN TO STOP" position).

3. Set the Auto Timer according to auto timer instructions for desired length of clean time. The clean cycle should normally be set for three (3) hours. **NOTE:** The self-clean start time cannot be delayed for this time.

4. Move the latch lever from the left ("COOK") position to the right ("CLEAN") position. The clean indicator and oven indicator will come on to signal the start of the clean cycle.

5. After the clean cycle has ended, turn the selector switch to "MANUAL" and the oven control to "OFF".

6. The oven door can be opened approximately thirty (30) minutes after the completion of the clean cycle. Do not attempt to open the oven door latch until approximately thirty (30) minutes have elapsed, otherwise the door lock mechanism may be damaged. DO NOT FORCE THE LATCH HANDLE. If the oven door will not open wait five (5) minutes and try again.

**COOK AND OFF TIMER TESTING PROCEDURES**

The electronic timer featured in this model provides automatic timing of bake/roast or self-clean oven operation by means of two (2) relay-operated S.P.S.T. switches which are normally open, contact 1-2 and 3-4. 120 VAC power is connected to terminals L1 and N. The numeric value of the 4-digit display can be increased by clockwise rotation of the "SET" knob and decreased by counterclockwise rotation. All knobs are removable by pulling straight out. **NOTE:** The oven start time cannot be delayed with this timer.

**OPERATIONAL TEST**

**⚠ WARNING**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

This test procedure requires power applied (120 VAC) either in the range or with 120 VAC line cord connected to terminals L1 and N for bench test. An ohmmeter or continuity tester should be alternately connected across switch terminals 1 to 2 and 3 to 4. Disconnect wire leads to terminals 1 to 2 and 3 to 4.

1. Set time of day on display. Program minute timer for five (5) to ten (10) seconds. Timer switches should indicate open condition on ohmmeter. The alarm will sound at the end of the countdown.
2. Connect the ohmmeter (set to RX1 range) across

either timer switch contacts 1 to 2 or 3 to 4. Press "SET" button twice (Auto Program) and rotate "SET" knob for approximately ten (10) to fifteen (15) seconds. Meter needle should swing to zero (0) ohms (continuity) indicating a closed switch. Repeat the procedure after transferring the test leads to the other switch contacts. Allow countdown to complete, the alarm should sound, and the meter indicate open contacts. **NOTE:** A slight "click" can be heard whenever the relay switches open or close.

**WARNING**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

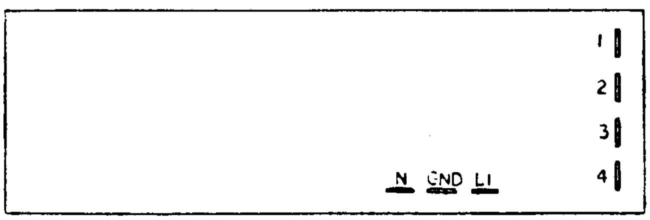



Figure 63 - Cook And Off Timer - Rear View - Partial

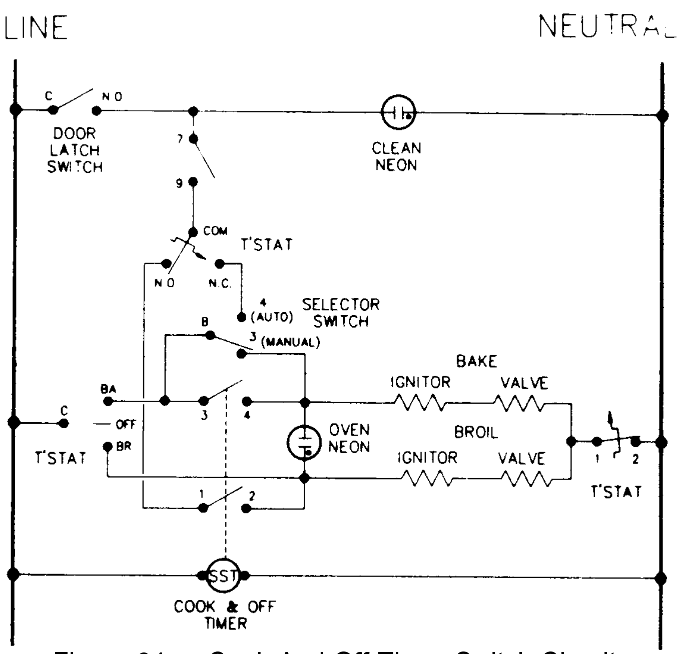



Figure 64 - Cook And Off Timer Switch Circuits

| CLOCK TIMER | | |
|---|---|---|
| FUNCTION | 1 - 2 | 3 - 4 |
| MANUAL | 0 | 0 |
| COOKING IN AUTO | X | X |
| AUTO COMPLETE | 0 | 0 |
| O = OPEN X = CLOSED | | |

Timer Switching Schedule

**BAKE AND BROIL IGNITORS**

The bake and broil ignitors are mounted to the bake and broil burners and ignite the gas flowing into the burner. During a broil or manual bake operation, current flows through the ignitor, gas valve, selector switch, and thermostat to neutral. As the ignitor starts heating up and glowing, its internal resistance decreases allowing more current to flow through the bake or broil circuit. When the circuit current reaches approximately 3.2 - 3.6 amps, the bi-metal arm in the gas valve flexes, opening the valve, allowing gas to flow to the burner where it is ignited by the glowing ignitor. The ignitors will glow anytime the bake or broil burners are in operation and cycle on and off with the thermostat cycling contacts.

The operation of the OVEN/BROILER "ELECTRIC IGNITOR" can be checked by using a VOLT/OHMMETER as follows: **NOTE:** This check must be made while the ignitor is at ambient room temperature.

1. Disconnect electricity.
2. Set the volt/ohmmeter on the RX1K ohms scale. (Zero the meter.)
3. Remove ignitor from burner.
4. Remove ignitor lead wire nuts and disconnect ignitor leads from range wiring.
5. Connect ohmmeter leads to ignitor wire leads.
6. If the meter indicates continuity (a low resistance reading), the ignitor is operative. **NOTE:** The cold resistance measurement can vary several hundred ohms. However, this test is for continuity without a dead short (zero ohms).

**WARNING**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

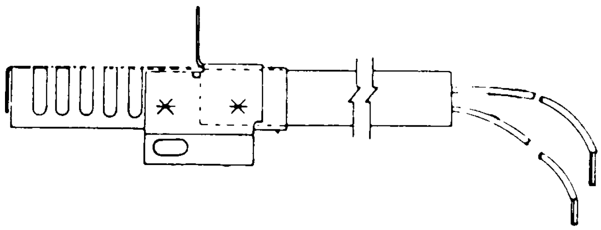


Figure 65

The ignitor may still be defective even though continuity is indicated and it glows when the oven is set for bake, broil, or clean function. A more exact test can be made to measure the ignitor current with the oven operating. An ammeter should be inserted in series with one (1) lead of the ignitor or an amprobe can be attached to the lead to check the amount of current flowing through the ignitor circuit. With the oven turned on and the ignitor glowing red, a current reading of approximately 3.2 - 3.6 amps should be indicated. The ignitor can also be removed and bench tested, using the current test method and an AC jumper or test cord connected to the ignitor leads.

**ELECTRIC GAS VALVE**

The bake and broil dual gas valve supplies the gas flow to the bake or broil burners. The valve contains bi-metalic arms attached to the valve seats and are wound with a small electric heater coil. When a current range of approximately 3.2 - 3.6 amps flows through the bake or broil circuit, the bi-metalic arm is heated causing it to flex or bend, allowing gas to flow to the burner where it is ignited by the burner ignitor. The gas valve is located behind the storage drawer.

**ELECTRIC GAS VALVE TEST WITH VOLT/OHM METER**

1. Disconnect electricity. (Disconnect plug or power cord.)

2. Remove the two (2) wire terminals from Point A for testing "BAKE" portion of gas valve or Point B for testing "BROIL" portion of gas valve.

3. Set volt/ohmmeter on the RX1 ohms scale (zero (0) the meter).

4. Attach a meter lead to each of the terminal studs on the portion of the valve to be tested.

5. If the meter does not show an "OPEN" circuit, the gas valve is operative.

6. Reattach the two (2) wire terminals removed from Point A or Point B on the gas valve.

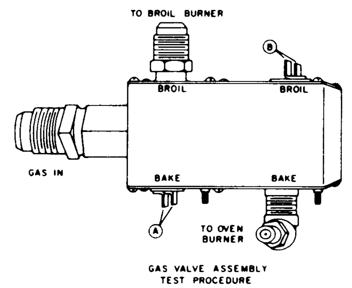



Figure 66

**SELECTOR SWITCH**

The selector switch is a two (2) position switch used for "MANUAL" or "AUTOMATIC" bake operation. The selector switch contacts can be checked for continuity by using a continuity tester or an ohmmeter set to the low ohms range and following the selector switch contact chart. Power to the oven must be turned off and the selector switch wiring removed when checking the contacts for continuity. Access to the selector switch contacts can be made by removing the control panel. **NOTE:** The selector switch is not found on models with the ERC.

| SELECTOR SWITCH CONTACTS | | |
|---|---|---|
| POSITION | B to 3 | B to 4 |
| MANUAL | X | 0 |
| AUTO | 0 | X |
| O = OPEN X = CLOSED | | |

**WARNING**

**TO AVOID THE RISK OF ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

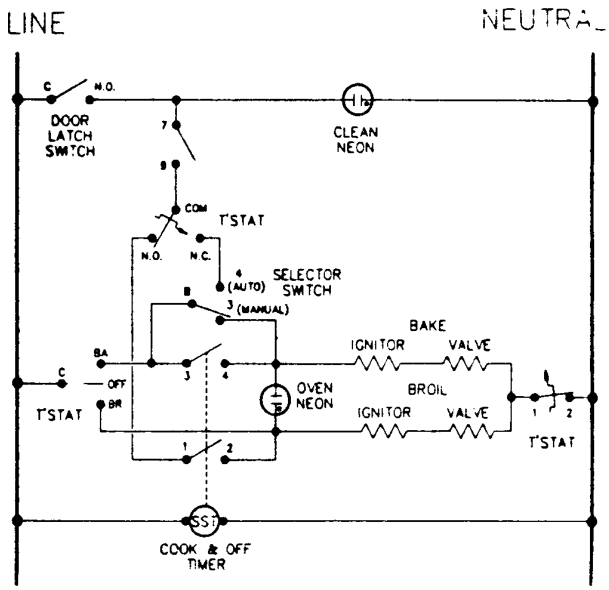



**Figure 67 - Selector Switch Circuit**

**OVEN THERMOSTAT (Not Used on Models with ERC)**

The oven thermostat maintains the correct oven temperatures in the bake, broil, and self-clean operations. The thermostat is located under the control panel.

In manual and timed bake operations, thermostat contacts C-BA and 1-2 close completing the bake circuit through the clock in a timed bake operation, the selector switch, bake ignitor, and bake gas valve to neutral. Thermostat contacts 1-2 are the cycling contacts that maintain the correct oven temperatures.

In a broil operation, thermostat contacts C-BR and 1-2 close completing the broil circuit through the broil ignitor, and broil gas valve to neutral. Thermostat contacts 1-2 are the cycling contacts that maintain correct broiling temperatures.

In the self-clean function with oven temperatures below approximately 700°F., thermostat contacts COM-NO, 7-9 and 1-2 close completing the clean circuit through the latch switch, the broil ignitor, and broil gas valve to neutral.

After the oven temperature reaches approximately 700°F., thermostat contacts COM-NO open and COM-NC close now completing the circuit through the latch switch, selector switch, timer contacts, bake ignitor, and bake gas valve to neutral. Contacts 1-2 cycle to maintain correct self-cleaning temperatures.

The thermostat contacts can be checked for continuity by a continuity tester or an ohmmeter set to the low ohms range and following the thermostat contact chart. Power to the oven must be turned off and the thermostat contact chart. Power to the oven msut be turned off and the thermostat wiring removed when checking the contacts for continuity. Access to the thermostat contacts can be made by removing the control panel.

| THERMOSTAT (T'STAT) | | | | | | |
|---|---|---|---|---|---|---|
| KNOB | 1-2 | COM. N.O. | COM. N.C. | C-BR | C-BA | 7-9 |
| OFF | N.S. | N.S. | N.S. | O | O | O |
| BAKE | CYCLES | N.S | N.S | O | X | O |
| BROIL | CYCLES | N.S | N.S. | X | O | O |
| CLEAN | CYCLES | X BELOW 700°F | X ABOVE 700°F | O | O | X |
| O = OPEN X = CLOSED N.S. = NOT SPECIFIED | | | | | | |

Thermostat Contact Chart

## MECHANICAL TIMER FOR RSS MODELS

**WARNING**

**FIRE OR EXPOLSION HAZARD - LEAK TEST COMPONENTS AFTER RECONNECTION**

### CLOCK TIMER (Non-Solid State)

The oven timer is an electric time-of-day clock, minute minder, and an automatic switch which controls the operation of the bake portion of the oven and self-clean duration of the oven.

Since the automatic switch is in series with the oven circuit, many customers complaints on the operation of the oven are due to a customers lack of knowledge of the operation of the timer. The users manual gives complete information of the use of the timer.

### TIMER SWITCH

1. Set the selector switch for "TIMED COOK" and the oven thermostat to 350°.

2. Set the time for automatic operation - Delayed Start - by pushing in on the Start Timer Knob and set the start time indicator about one hour ahead of the timer on the clock. (See Figure 69.)

3. Push in on the Stop Time Knob and set the Stop Time Indicator to approximately two (2) hours ahead of the time on the clock. (See Figure 69.) This clock assembly may use the analog or conventional clock face and may be configured differently. However, all test procedures are identical.

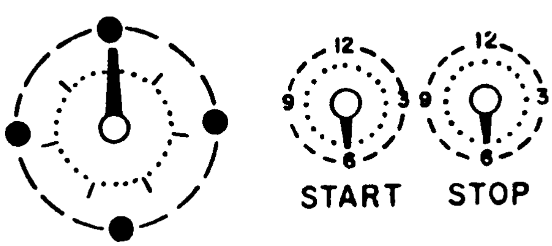



Figure 69

4. Advance the Clock Hands until they reach the Start Time Setting; at this point the Start Time Knob should "POP" out and within one (1) minute the oven burner should go OFF.

5. Advance the Clock Hands until they reach the Stop Time Setting; at this point the Stop Time Knob should "POP" out and within one minute the oven burner should go OFF.

6. If the oven burner does not turn "ON" and "OFF" after conducting test in instructions one (1) through five (5) then proceed as follows:
7. Be certain the wires are connected as shown in the appropriate wiring diagram.

8. Conduct a continuity test across the switch contacts of the clock timer. (See Figure 70.)

**CLOCK TIMER CONTACTS (DIAL)**

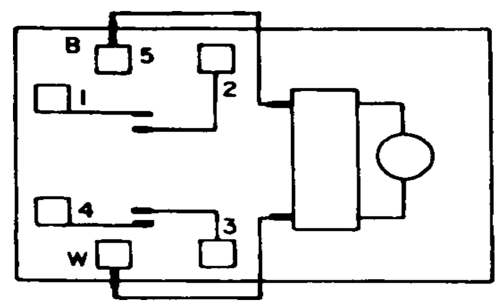



Figure 70

### CLOCK TIMER

The Clock/Timer must be replaced if the switch will not close or open the circuit at the settings indicated in Table below.

| CLOCK - TIMER CHART | | | |
|---|---|---|---|
| **CONDITIO** | **SET UP** | **1 - 2** | **3 - 4** |
| OFF | BOTH KNOBS OUT | OPEN | OPEN |
| START NOW | SET STOP TIME | CLOSED | CLOSED |
| DELAY START | SET START & STOP TIMES | *CLOSED | *CLOSED |
| *CLOSED ONLY BETWEEN START TIME AND STOP TIME SETTINGS. | | | |

1. Push in on the Stop Time Knob and set the Stop Time Indicator to approximately two (2) hours ahead of the time on the clock. (See Figure 69.)

2. Advance the Clock Hands or Digits until they reach the Start Time Setting; at this point the Start Time Knob should "POP" out and within one (1) minute the lower oven burner should come ON.

3. Advance the Clock Hands or Digits until they reach

the Stop Time Setting; at this point the Stop Time Knob should "POP" out and within one minute the oven burner should go OFF.

4. If the oven burner does not turn "ON" and "OFF" after conducting test in instructions one (1) through three (3) then proceed as follows:

5. Be certain the wires are connected as shown in the appropriate wiring diagram.

# OPERATION AND SERVICE PROCEDURES

## AUTOMATIC ELECTRIC TIMER RSS380

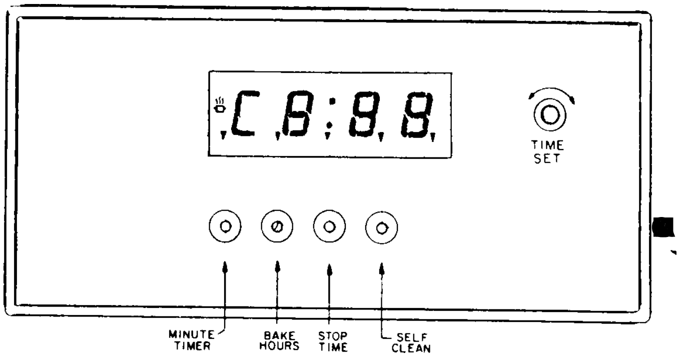



Figure 71 - Solid State Digital Timer

### AUTOMATICTIC ELECTRONIC TIMER (Solid State)

The electronic timer featured in certain models provides full automatic timing of bake/roast or self-clean oven operation by means of two relay-opened S.P.S.T. switches which are normally open, contact 11-12 and 13-14. 120 VAC power is connected to terminals 1 and 2. The numeric value of the 4-digit display can be increased by clockwise rotation of the "Time Set" knob and decreased by counter-clockwise rotation. All knobs are removable by pulling straight out.

Indicator arrows (LED) are aligned over each of the four (4) push button function knobs and associated with that function. Each indicator arrow is lighted during operation of that function and goes off at the end of that function. With the exception of the self-clean button, pressing in any one of the three buttons on the left lights the respective indicator arrow which then allows only three (3) or four (4) seconds to set the time on the display, then the display reverts to time-of-day if nothing is entered. To set time-of-day in the display, simultaneously press in any two of the three buttons on the left and enter the digits with the time set knob. The time-of-day clock has no AM and PM indicator.

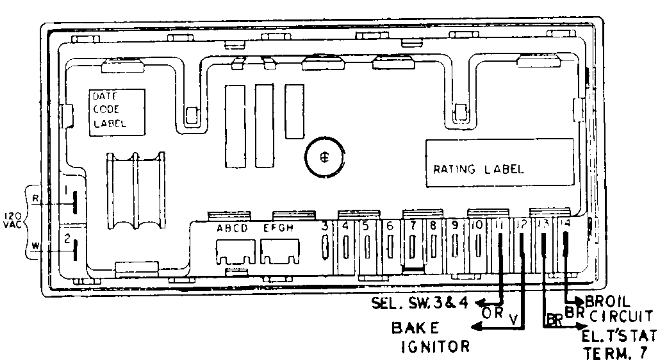



Figure 72

### SELF-CLEAN TIMER OPERATION

The self-clean button on the right, when pressed, immediately enters three (3) hours in the display and both relay switches close. On the left side of the display a small oven-on symbol will appear along with the letter "C" (cleaning). If the other range controls are set for clean, the oven will start immediately. The self-clean time, three (3) hours, can be increased to a maximum of four (4) hours or reduced to less than three (3) hours with a "time set" knob. At the end of the clean operation the display returns to Time-Of-Day, the switches open, and shut off the oven. For delayed start, set the "Stop" button for desired stop time. The timer will calculate the required start time and start the oven accordingly.

### BAKE-ROAST TIMER OPERATION

Baking or roasting in automatic time cook mode provides the option of cooking for a specific time period starting immediately or delaying the start to a later time. For timed cook, starting immediately, push in the bake button and enter the cooking time period. The relay switches will close, the indicator arrow will be lit to indicate that the oven is on (thermostat must be set to a temperature setting and selector in timed bake position). For delayed time cook, it is necessary to set the "Stop Time" button for the time desired for the cooking to be completed, then set the length of cooking time. The oven and clock timer will start the required period of time before the stop time to complete the cooking. As an example, assume it is 1:00 p.m., the food to be baked or roasted will require two (2) hours and it is desired to have it cooked and ready to serve at 5:00 p.m. The procedure would be to set the thermostat to the desired temperature and the selector to timed bake. Then push in the "Stop Time" knob and set the display for 5:00. Next, push in the "Bake Hours" knob and set the time for cooking - two (2) hours. The timer will automatically calculate the start time 3:00 p.m., and turn on the oven. When programming the clock for this function the "Bake Hours" knob can be pushed first and two (2) hours entered. Then the 5:00 p.m. "Stop Time" programmed. The timer will still calculate the start time and operate the oven. When the oven is programmed either for timed cook or for the self-clean the indicator arrows will flash slowly to indicate a program is in operation. When a program is in operation, the time of day cannot be changed, only the program time can be advanced or reduced. If it is desired to stop a program before completion, turn the thermostat and selector to OFF. This will stop oven operation but not the clock timer program operation. This may be allowed to continue or may be stopped by pressing the respective operational

button (bake or clean) and rotating the time set control to move the digits back to "0:00". The display will then show time of day. If in self-clean the program also can be stopped by pressing the self-clean button a second time. The display will return to time of day.

**BUZZER ALARM**

The buzzer alarm sounds at the end of the minute-minder countdown. It also sounds at the completion of the timed bake or roasting cycle but not sound at the end of the self-clean program. The buzzer will sound for one (1) to two (2) minutes then shut off. It can be silenced manually by pressing any of the three (3) buttons on the left. Pressing the "Clean" button will also silence the alarm but then the three (3) hour clean setting in the displayed would need to be cleared manually.

**DISPLAY**

When the range is initially connected to the power source or after a power interruption, each element of the display will light momentarily in sequence then momentarily display four (4) zeros. Following this the display will flash four (4) eights along with the two (2) left most arrows to indicate the buttons to be pressed to set the time of day.

Initial power connection or power interruption can be simulated by pressing in all three (3) left most buttons simultaneously.

**WARNING**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

**TIMER TESTING**

The electronic digital timer can be tested operationally and electrically.

**OPERATIONAL TEST**

This test procedure requires power applied (120 VAC) either in the range or with 120 VAC line cord connected to terminals 1 and 2 for bench test. An ohmmeter or continuity tester should be alternately connected across switch terminals 11 to 12 and 13 to 14. Selector switch must be in "OFF" position and latch in open position (non self-clean). **NOTE:** With selector switch in "OFF" position and latch in open position, the timer switch terminals are disconnected from circuit power sources which could damage the ohmmeter.

1. Simulate initial power connector or power interruption by pressing the three (3) left hand buttons simultaneously. Each element of the display should momentarily light in sequence followed by a momentary four (4) zeros and then four (4) eights and two (2) arrows flashing. Ohmmeter checks across switch contacts 11 to 12 and 13 to 14 should indicate open switches (infinite or very high ohms). Ohmmeter should be on RX1 range.

2. Reset time-of-day on display (press in two (2) left buttons and turn "Time Set" knob). Push in minute timer button (far left) and program five (5) to ten (10) seconds in display. Timer switches should indicate open condition on ohmmeter. Alarm buzzer should sound at the end of the countdown. Push minute minder button to stop buzzer.

3. Connect the ohmmeter set to RX1 range across either time switch 11 to 12 or 13 to 14. Press in the "Bake" button and hold. Meter should indicate open switch (infinite or very high ohms). While holding button in, set approximately ten (10) seconds on the display. Meter needle should swing to zero (0) ohms indicating switch closed. Repeat the procedure after transferring the test leads to the other switch. Allow countdown to complete, buzzer should sound. Push button in to silence buzzer. Display should return to time of day.

4. With ohmmeter connected across one of the switches and set to RX1 range, push in the "Stop" button and program time of day plus ten (10) minutes. Meter should indicate switches are open. Push in "Bake Time" button - switches should still remain open. With "Bake Time" button held in, program five (5) minutes. Switches should still show open condition. Allow timer to countdown, oven should start (switches close) in five (5) minutes. After five (5) more minutes switches should open, display indicates time of day and buzzer sounds. Press bake button to silence buzzer.

5. Push self-clean button in. The following should take place immediately - three (3) hours (3:00) should appear in the display, the letter "C" should appear on the left side of the display, the oven-on symbol should also appear on the left and both switches should be closed. Manually, with "Time Set" control, turn the digital display down to one (1) minute. Allow the timer to countdown to 0:00 - display should return to time-of-day and the switches open.

**NOTE:** A slight "click" can be heard whenever the relay switches open or close.

## AUTOMATIC ELECTRIC TIMER RSS380

**WARNING** **FIRE OR EXPLOSION**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

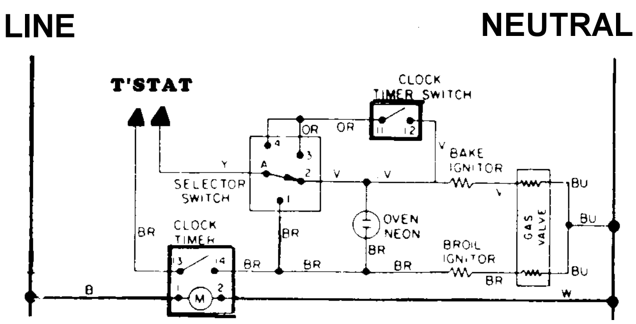



Figure 73

| CLOCK TIMER | | |
|---|---|---|
| **FUNCTION** | **11 - 12** | **13 - 14** |
| MANUAL | 0 | 0 |
| DELAY IN AUTO | 0 | 0 |
| COOKING IN AUTO | X | X |
| AUTO COMPLETE | 0 | 0 |
| O = Open<br>X = Closed | | |

**WARNING**

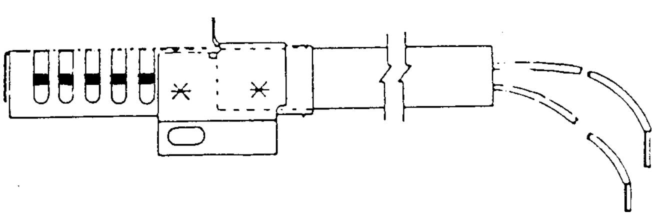
TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

### BAKE AND BROIL IGNITORS

The bake and broil ignitors are mounted to the bake and broil burners and ignite the gas flowing into the burner. During a broil or manual bake operation, current flows through the ignitor, gas valve, selector switch, and thermostat to neutral. As the ignitor starts heating up and glowing, its internal resistance decreases allowing more current to flow through the bake or broil circuit. When the circuit current reaches approximately 3.2 - 3.6 amps, the bi-metal arm in the gas valve flexes, opening the valve, allowing gas to flow to the burner where it is ignited by the glowing ignitor. The ignitors will glow anytime the bake or broil burners are in operation and cycle on and off with the thermostat cycling contacts.

The operation of the OVEN/BROILER "ELECTRIC IGNITOR" can be checked by using a VOLT/OHMMETER as follows: **NOTE:** This check must be made while the ignitor is at ambient room temperature.

1. Disconnect electricity.
2. Set the volt/ohmmeter on the RX1K ohms scale. (Zero the meter.)
3. Remove ignitor from burner.
4. Remove ignitor lead wire nuts and disconnect ignitor leads from range wiring.
5. Connect ohmmeter leads to ignitor wire leads.
6. If the meter indicates continuity (a low resistance reading), the ignitor is operative. **NOTE:** The cold ohms. However, this test is for continuity without a dead short (zero ohms).



The ignitor may still be defective even though continuity is indicated and it glows when the oven is set for bake, broil, or clean function. A more exact test can be made to measure the ignitor current with the oven operating. An ammeter should be inserted in series with one (1) lead of the ignitor or an amprobe can be attached to the lead to check the amount of current flowing through the ignitor circuit. With the oven turned on and the ignitor glowing red, a current reading of approximately 3.2 - 3.6 amps should be indicated. The ignitor can also be removed and bench tested, using the current test method and an AC jumper or test cord connected to the ignitor leads.

### ELECTRIC GAS VALVE

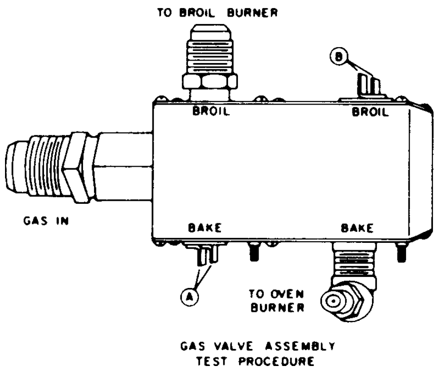
The bake and broil dual gas valve supplies the gas flow to the bake or broil burners. The valve contains be-metallic arms attached to the valve seats and are wound with a small electric heater coil. When a current range of approximately 3.2 - 3.6 amps flow through the bake or broil circuit, the bi-metallic arm is heated causing it to flex or bend, allowing gas to flow to the burner where it is ignited by the burner ignitor. The gas valve is located behind the storage drawer.

### ELECTRIC GAS VALVE TEST WITH VOLT/OHM METER

1. Disconnect electricity. (Disconnect plug or power cord.)
2. Remove the two (2) wire terminals from Point A for testing "BAKE" portion of gas valve or Point B for testing "BROIL" portion of gas valve.
3. Set volt/ohmmeter on the RX1 ohms scale (zero (0) the meter).
4. Attach a meter lead to each of the terminal studs on the portion of the valve to be tested.
5. If the meter does not show an "OPEN" circuit. The gas valve is operative.
6. Reattach the two (2) wire terminals removed form Point A or Point B on the gas valve.

**WARNING** **FIRE OR EXPLOSION**

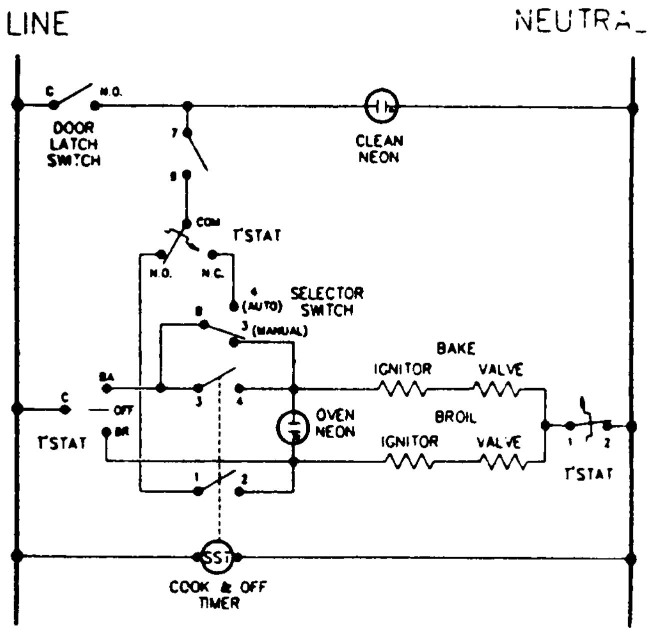
**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**




## SELECTOR SWITCH

The selector switch is a two (2) position switch used for "MANUAL" or "AUTOMATIC" bake operation. The selector switch contacts can be checked for continuity by using a continuity tester or an ohmmeter set to low ohms range and following the selector switch contact chart. Power to the oven must be turned off and the selector switch wiring removed when checking the contacts for continuity. Access to the selector switch contacts can be made by removing the control panel. NOTE: The selector switch is not found on models with the ERC.

| SELECTOR SWITCH CONTACTS | | |
|---|---|---|
| POSITION | B to 3 | B to 4 |
| MANUAL | X | 0 |
| AUTO | 0 | X |
| O = OPEN X = CLOSED | | |




Selector Switch Circuit

## OVEN THERMOSTAT (Not Used On Models With ERC)

The oven thermostat maintains the correct oven temperatures in the bake, broil, and self-clean operations. The thermostat is located under the control panel.

In manual and timed bake operations, thermostat contacts C-BA and 1-2 close completing the bake circuit through the clock in a timed bake operation, the selector switch, bake ignitor, and bake gas valve to neutral. Thermostat contacts 1-2 are the cycling contacts that maintain the correct oven temperatures.

In a boil operation, thermostat contacts C-BR and 1-2 close completing the broil circuit through the broil ignitor, and broil gas valve to neutral. Thermostat contacts 1-2 are the cycling contacts that maintain correct broiling temperatures.

In the self-clean function with oven temperatures below approximately 700°F., thermostat contacts COM-NO, 7-9 and 1-2 close completing the clean circuit through the latch switch, the broil ignitor, and broil gas valve to neutral.

After the oven temperature reaches approximately 700°F., thermostat contacts COM-NO open and COM-NC close now completing the circuit through the latch switch, selector switch, timer contacts, bake ignitor, and bake gas valve to neutral. Contacts 1-2 cycle to maintain correct self-cleaning temperatures.

The thermostat contacts can be checked for continuity by using a continuity tester or an ohmmeter set to the low

ohms range and following the thermostat contact chart. Power to the oven must be turned off and the thermostat wiring removed when checking the contacts for continuity. Access to the thermostat contacts can be made by removing the control panel.

| THERMOSTAT (T'STAT) | | | | | | |
|---|---|---|---|---|---|---|
| KNOB | 1-2 | COM. N.O. | COM. N.C. | C-BR | C-BA | 7-9 |
| OFF | N.S. | N.S. | N.S. | O | O | O |
| BAKE | CYCLES | N.S | N.S | O | X | O |
| BROIL | CYCLES | N.S | N.S. | X | O | O |
| CLEAN | CYCLES | X BELOW 700°F | X ABOVE 700°F | O | O | X |
| O = OPEN X = CLOSED N.S. = NOT SPECIFIED | | | | | | |

Thermostat Contact Chart

**WARNING** **FIRE OR EXPLOSION**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

**SPARK MODULE TESTING**

When properly operating, the spark module will produce a spark at the ignitor accompanied by a sharp snapping sound each time the ignitor sparks.

The spark module is located under the burner box on the left side.

The sealed top burner units have two (2) spark modules, one (1) on the left and one (1) on the right or one (1) spark module with four (4) ignitor connections.

**TO CHECK THE MODULE**

1. Disconnect electricity at disconnecting plug, and turn off gas supply to the range.
2. Check wiring against wiring diagram to be sure all terminals and wire-connections are correct and tight.
3. SET VOLT/OHMMETER ON THE 120 VAC SCALE or higher.
4. Attach one (1) meter lead to the "L" wire terminal on the spark module.
5. Attach the remaining lead of the test meter to the "N" "WHITE" terminal on the spark module.
6. Reconnect electricity at main disconnect plug.
7. Turn all top burner knobs to the "LIGHT" positions.
8. No line voltage (115 VAC ± 10 VAC) at test meter indicates the electrical circuit is interrupted before spark module.
9. Line voltage at test meter - check ignitors.
10. If ignitors are OK; then replace ignition module.

**TOP BURNER SPARK IGNITORS**

A spark ignitor is located between each pair of left and right burners. Sealed burner units have an electrode for each burner. When any of the burner valves is turned to the "LITE" position, the spark switch on the valve closes, supplying 120 VAC to the spark module. This activates the module which produces the spark at the ignitor electrode to light the burner.

**TO CHECK THE SPARK IGNITORS**

1. Disconnect electricity at main disconnect plug.
2. Disconnect the high voltage spark ignitor leads from the terminals on the spark module.
3. SET THE VOLT/OHMMETER ON THE "RX1" OHM SCALE (adjust zero).
4. Attach one meter lead to a good ground (bare metal) on the range body.
5. Touch the remaining meter lead to the terminal of the ignitor lead. A continuity reading from the ignitor lead indicates the ignitor lead is shorted to ground. If no continuity reading from the ignitor lead to ground, proceed to Step 6.
6. Attach one (1) meter lead to the terminal of the ignitor lead and touch the remaining meter lead on the opposite end of the ignitor lead which is attached to the top burner mounting bracket. Repeat same procedure with the other ignitor lead. No continuity on the lead indicates an open circuit in the ignitor lead wire. (On sealed burner units, one (1) meter lead must be attached to the electrode socket at the venturi.)

**SPARK SWITCH TEST**

Each spark switch is connected in parallel in the spark

ignition circuit. One terminal of each switch is connected to the 120 VAC line while the other terminal connects to the "L1" module terminal. Terminal "N" of the module connects to the common or neutral side of the AC line. The spark switch is located on the stem of the top burner valve.

A continuity test can be made to check for proper switch operation. Shut off power to the range and remove the switch wiring. Set an ohmmeter to the RX1 scale and attach the meter leads to the switch terminals. When the switch is turned to the "LITE" position, zero (0) OHMS (closed contacts) should be indicated. Infinite OHMS (open contacts) should be indicated in all positions except "LITE". If the switch fails this test, it must be replaced.

**DOOR LATCH MECHANISM**

The door latch mechanism is used to insure the oven door is sealed tightly against the chassis during the clean cycle. The latch cannot be moved to the "CLEAN" position unless the door is closed. A thermal safety "jams" the lock mechanism during the clean cycle to prevent accidental opening of the door latch during cleaning. When the latch is jammed the latch cannot be moved to the "COOK" position.

After the cleaning is completed and the oven cools, the latch is released and can be moved again to the "COOK" position.

**⚠ WARNING** **FIRE OR EXPLOSION**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

**LATCH SWITCH**

The door latch switch is a single pole, double throw switch. It is used to complete the self-clean cycle. On models without the ERC, it also completes the circuit to the "CLEAN" indicator. It is mounted on the door latch mechanism.

**The Switch Contacts can be Checked as Follows:**

1. Shut off power to the range.
2. Disconnect the switch wire leads and check the COM - N.O. and COM - N.C. contacts for continuity.
3. When the door latch is in the left or unlocked position, the COM - N.O. contacts should be open and the COM - N.C. contacts should be closed.
4. Move the door latch to the far right or locked position. The COM - N.O. contacts should be closed and the COM - N.C. contacts should be open.

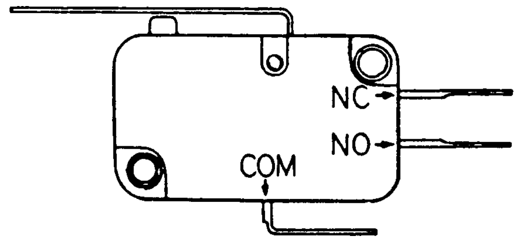



Figure 74 - Latch Switch

**ROCKER SWITCH TESTING**

The rocker type switch on these models is a single pole, double throw switch used to control the oven light. The rocker switch contacts can be checked for continuity by using an ohmmeter set to the RX1 scale or a continuity tester. Set the switch to the position as shown in Figure 31 and connect the meter or tester leads to terminals 2 - 3 and then to terminals 1 - 2. Continuity should be indicated across terminals 2 - 3 and open contacts should be indicated across terminals 1 - 2.
Set the rocker switch to the position as shown in Figure 32. Continuity should be indicated across terminals 1 - 2 and open contacts indicated across terminals 2 - 3. If the switch fails either test, it should be replaced.

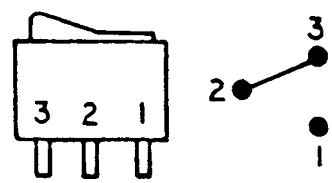



Figure 75

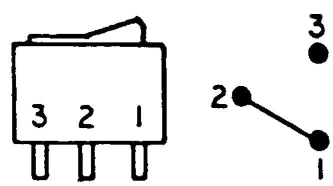



Figure 75A

**FLUORESCENT LIGHT SYSTEM**

The fluorescent light system incorporates a light switch, fluorescent starter and ballast in conjunction with the fluorescent lamp. Momentarily depress the lamp switch. The lamp should light and remain lit until the switch is depressed a second time.

**TO TEST THE FLUORESCENT LIGHT SWITCH**

1. Shut off power to the range.
2. Disconnect switch leads to wire nuts.

**⚠ WARNING**

TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

3. Attach ohmmeter leads (RX1 scale) to switch leads. With the switch in the "OFF" position, infinite ohms (open) should be indicated.

4. Momentarily depress switch. Continuity (low ohms) should be indicated.

5. Depress and release the switch. Infinite ohms (open) should be indicated.

**TO TEST THE BALLAST:**

1. Shut off power to the range.

2. Disconnect two (2) wire leads to ballast.

3. Attach one (1) lead of the ohmmeter (RX1 scale) to each terminal of the ballast. A reading of approximately twenty-two (22) ohms should be indicated. Attach one (1) meter lead to one (1) terminal of the ballast and the other lead to the metal cage on the ballast. Infinite ohms (open) should be indicated. Attach lead to the other terminal. Infinite ohms (open) should be indicated.

**TOP BURNER VALVE**

The top burners of some models are equipped with Tri-Set top burner valves. These valves provide flame adjustment for any size flame which is desired as well as "click" positions for "LO", "MED", and "HI" settings. Depress the knob and turn the knob counterclockwise as far as it will go. When the burner lights, turn the knob back to the desired flame height.

| PROBLEMS | POSSIBLE CAUSE | CORRECTIO |
|---|---|---|
| 1. Burners will not ignite "SPARK" at top burner ignitors. | A. Burner venturi, burner cap or burner ignition ports clogged. | A. Clean burner |
| | B. Air Shutters out of adjustment. | B. Adjust air sh in installatior |
| | C. Burner flame not correctly adjusted (LP GAS). | Adjust burne conversion i instructions. |
| | D. Poor ground on ignitor grounding bracket or gap between ignitor and bracket dimple is too large. | C. Tighten bracl (- 1/32", + 0" |
| 2. Burner will not ignite. No "SPARK" at top burner ignitors. Burner knob pushed down and held in "LIGHT" position. | A. No 120 VAC to range. | A. Check electri |
| | B. Micor Switch contacts not closing. | B. Check wiring and be sure are correct a |
| | C. Faulty wiring. | C. Check wiring and be sure are correct a |
| | D. Inoperative spark module. | D. Check modu on page --. |
| | E. Ignitor ceramic dirty, spark gap out of adjustment | E. Clean cerami spark gap |

# TROUBLESHOOTING GUIDE

**⚠ WARNING**

TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

**OVEN CONTROLS**

The oven controls consist of a thermostat, selector switch, gas vlave and a 120 VAC electric ignitor to provide ignition for the gas at the oven burner and broiler burner.

| PROBLEMS | POSSIBLE CAUSE | CORRECTIOI |
|---|---|---|
| 1. Oven Burner/Broil Burner will not turn on. "Selector" switch set on BAKE/BROIL. Thermostat set at 350°/Broil. Door latch in cook position.<br><br>NOTE: The flat type ignitor used in these models has an operating current range of from 3.2 amps A.C. to 3.6 amps A.C. The gas valve is calibrated to open at slightly over 3.2 amps, since the ignitor will be hot enough to ignite any gas flowing from the burner. The current can be checked using a clamp-on ammeter or an in-line ammeter. If the current does not reach 3.2 amps, replace the ignitor. | A. No 120 VAC to range.<br><br>B. Inoperative ignitor.<br><br>C. Inoperative gas valve.<br><br>D. Inoperative selector switch.<br><br>E. Inoperative thermostat.<br><br>F. Faulty wiring. | A. Check electric<br><br>B. Check ignitor page --. Rep<br><br>C. Check gas va on page --. F<br><br>D. Check selecto instructions or switch.<br><br>E. Check thermo on page --. F<br><br>Check wiring diagram and connections a |
| 2. Gas valve opens but Oven/Broiler burner does not ignite. | A. BAKE/BROIL igniotr positioned too far from burner.<br><br>B. Incorrect adjustement/or incorrect burner orifice on broil burner. (LP GAS). | A. Reposition BA the burner.<br><br>B. Adjust univers Install correct |

**SELF-CLEAN CONTROLS**

The self-Clean controls for self-cleaning the lower compartment consist of the clock timer, the clean portion of the thermostat, and the gas valve assembly.

| PROBLEMS | POSSIBLE CAUSE | CORRECTIC |
|---|---|---|
| 1. No Self-Clean | A. Controls not set properly.<br><br>B. Faulty latch switch.<br><br>C. Oven or broiler burner does not turn on. | A. Turn selector door latch to oven heat cc Oven indicato not refer to n models do n<br><br>B. Check for 12 with the door voltage is pre is OK; if not,<br><br>C. Check unit ir insure both f both function are OK proce check apprip procedure in |

**WARNING**

TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

The "HI" position provides a flame which will bring water to a full boil quickly. This is the "full on" position of the valve.

If the burner flame is turned down, an audible "click" can be heard as the valve reaches the "MEDIUM" position. This flame is sufficient to keep water boiling in a covered pan.

When the flame is turned down still lower, a second "click" can be heard. This is a very low or "Keep Warm" flame setting which is the "LO" position on the valve. The low flame provides a warming heat to keep food which is already cooked ready to serve.

The Tri-Set valves are equipped with metered, fixed orifices and the low setting cannot be adjusted. As there are air shutters, the burner flames can be adjusted in accordance with the Adjustment and Calibration Instructions of this Manual.

The HI-LOW valves on other models are similar but without the "click" stops.

**TOP BURNER**

The top burners consist of a burner and intergral cap, a flash tube and support, a gas delivery tube including venturi and an adjustment air shutter. These burners are designed for trouble free operation with a minimum of parts.

**INDICATOR LIGHT TESTING**

If the oven (bake, broil, clean) operates normally but the indicator lights do not glow, check for voltage at the indicator light terminals. If voltage is present at the indicator terminals and the indicator does not glow, replace the indicator light. If no voltage is present at the indicator terminals, check for loose connectors, broken wiring, or other defective components (thermostat, ignitor, etc.). **NOTE:** The oven indicator light and the clean indicator light operates on 120 VAC. Use caution when checking for indicator light voltages.

**OVEN LIGHT SWITCH**

The oven light switch can be tested using the same procedure as the fluorescent light switch.

The fluorescent light components, oven light switch and indicator lights are located behind the backguard glass mounted to the backguard control panel.

The indicator lights, oven light switch, selector switch, and thermostat on RST307, 308, 309 are located behind the control panel.

**BURNER CAPS**
**Models with Sealed Burners**
The burner caps on models with sealed burners contain the electrode tip for the spark ignition.

**TO CHECK THE BURNER CAP:**

1. Turn off power to the unit.
2. Remove burner cap from unit. Attach one of the ohmmeter leads (RX1 scale) to the electrode terminal. Attach the other lead to the tip of the electrode. Continuity (low ohms) should be indicated. If continuity is indicated, remove one (1) lead and attach lead to the burner cap. Infinite ohms (open) should be indicated.

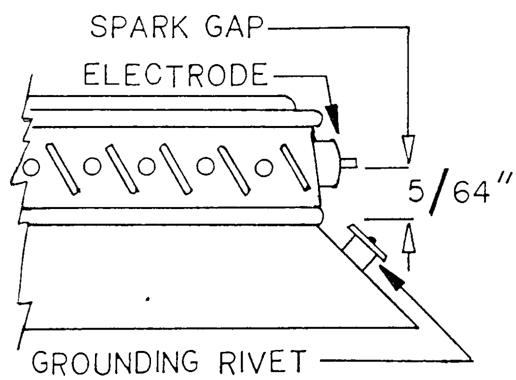



Figure 76

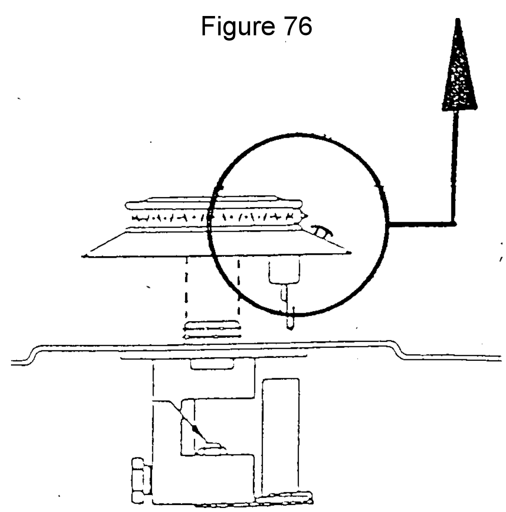


Figure 77

3. Spark gap should be checked and, if necessary, adjust to dimension shown.

4. Clean electrode and grounding rivet with fine file to assure ground path for spark.

5. Be certain all slots and holes are clear of cleansing powder, grease, etc.

**BURNER CAPS**
**Models with Cast Sealed Burners**

**TO CHECK BURNER-BURNER CAPS:**

1. Turn off power to unit.

2. Remove cast cap from base.

3. Be certain the underside of burner cap is clear of metal shavings, grease, cleansing powder, etc.

4. Be certain top side of burner base is clear of metal shavings, grease, cleansing powder, etc.

5. Spark gap should be checked and, if necessary, adjusted to dimension shown.

6. Spark should be visible between electrode wire tip and bottom side of burner cap. Spark jump to burner base (not between spark gap) could be due to cracked/ broken ceramic portion of electrode assembly which requires replacement.

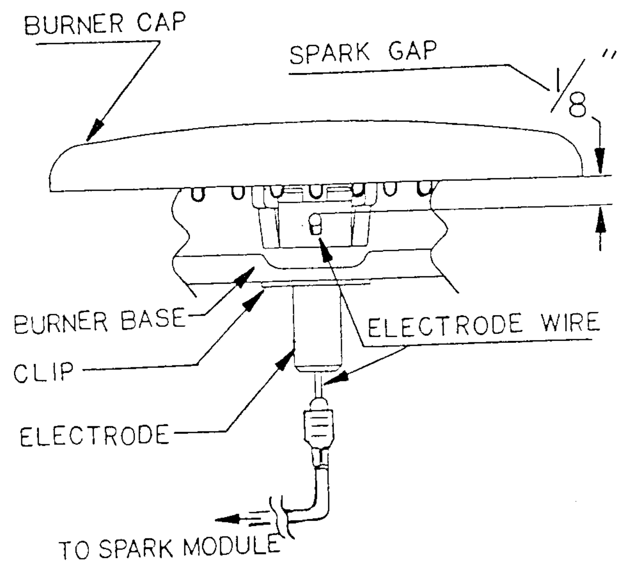



Figure 78

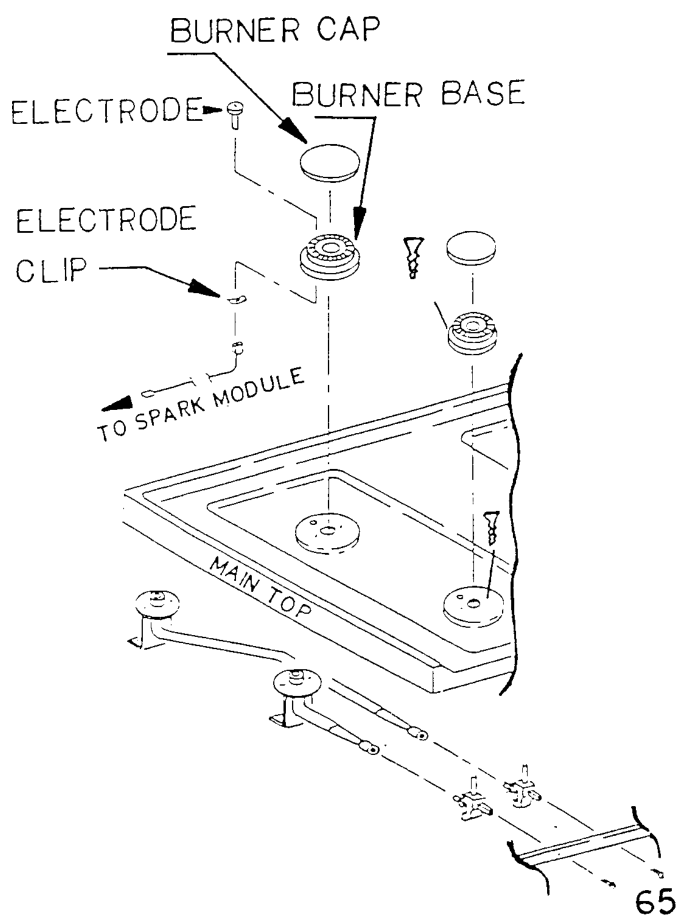



Figure 79

# TROUBLE SHOOTING GUIDE

**WARNING** FIRE OR EXPLOSION

TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

Non-Sealed Top Burners

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| 1. Burners will not ignite. "SPARK" at top burner ignitors. | A. Burner venturi, burner cap or burner ignition ports clogged. | A. Clean burner venturi, or i |
| | B. Air shutters out of adjustment. | B. Adjust air shutter accord instruction. |
| | C. Burner flame not correctly adjusted (LP GAS) | C. Adjust burner flame accc information in installation |
| | D. Poor ground on ignitor grounding bracket or gap between ignitor and bracket dimple is too large. | D. Tighten bracket and /or 0"). |
| | E. Low gas pressure | E. Check pressure (6" WCI for LP). |
| 2. Burner will not ignite. No "SPARK" at top burner ignitors. Burner knob pushed down and held in "LIGHT" position. | A. No 120 VAC to range. | A. Check electric at wall ou |
| | B. Micro Switch contacts not closing. | B. Check micro switch posi micro switch contacts (S |
| | C. Faulty wiring or bad connection. | C. Check wiring against ap all terminals and connec |
| | D. Inoperative spark module. | D. Check module accordin Replace module. |
| | E. Ignitor ceramic dirty, spark gap out of adjustment. | E. Clean ceramic, check gr |
| | F. Cracked or broken ignitor extension lead. | F. Replace ignitor. |
| 3. An intermittent or occasional spark after unit is turned off. | A. Crossed polarity. When polarity is correct, no voltage is present at neutral to ground and no voltge to spark module with switch at off. | A. With all switches in the ' voltage at the "N" termin ground. If voltage is pre |

# TROUBLESHOOTING GUIDE

**WARNING** FIRE OR EXPLOSION

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Non-Sealed Top Burners

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| 4. Unit continues to spark after it is turned off. | A. Shorted valve switch. | A. Replace switch. NOTE: If shorting is caus customer should be advi |
| | B. Switch has been pulled up and off of fixed positon on valve so that it is not turned to off positon with valve stem. | B. Carefully reposition swit from off to high several t broken. |
| 5. No spark or only random spark at on ignitor. | A. Most common cause is a cracked ignitor or a pinched ignitor lead wire permitting current leakage. | A. Replace ignitor lead or e |
| | B. Bad connection of ground or lack of continuity to ground of ignitor. | B. Tighten ground connecti ground path from ignitor |
| | C. Cracked or broken ignitor extension lead. | C. Replace ignitor. |
| 6. Yellow tipped burner flame. | A. Too little primary air. | A. Open air shutter on burn |
| | B. Burner head bent. | B. Level burner head. |
| | C. If using L.P. gas, range may not be properly converted. | C. Check for proper L.P. cc |
| 7. Flame blows away from burner. | A. Too much air. | A. Slightly close air shutter t |
| | B. Gas pressure too high. | B. Check pressure at orifice |
| | C. Heavy draft around cooktop area. | C. Eliminate source of draft. |
| 8. Flames flash back into mixer head. | A. Too much air. | A. Close air shutter slightly. |
| 9. Floating lazy flame. | A. Blocked burner. | A. Check for possible block |
| 10. Gas smell in kitchen. | A. Leak in pipe joint. | A. Check gas connections needed. |

# TROUBLE SHOOTING GUIDE

**WARNING** FIRE OR EXPLOSION

TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

Sealed Top Burners

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| 1. Burners wil not ignite "SPARK" at top burner ignitors. | A. Burner orifice, burner cap or burner ignition ports clogged.<br><br>Poor ground on burner cap.<br><br>Weak spark module.<br><br>Low gas pressure. | A. Clean burner orifice, or ign<br><br>Clean burner cap.<br><br>Replace spark module.<br><br>Check pressure (6" WCP for LP). |
| 2. Burner will not ignite. No "SPARK" to burner ignitors. Burner knob pushed down and held in "LIGHT" position. | A. No 120 VAC to range.<br><br>Micro Switch contacts not closing.<br><br>Faulty wiring. Bad connection at burner cap electrode and electrode socket.<br><br>Inoperative spark module.<br><br>Electrode dirty, burner cap dirty.<br><br>Cracked or broken electrode, wire or electrode socket. | A. Check electric at wall outl<br><br>Check wiring against appr all terminals and connecti Check micro switch conta<br><br>Check wiring against appr all terminals and connecti<br><br>Check module according t Replace module.<br><br>Clean electrode or burner<br><br>Replace electrode wire or |
| 3. No spark or only random spark at one ignitor. | A. Most common cause is a cracked ignitor or a pinched ignitor lead wire permitting current leakage.<br><br>Bad connection of ground or lack of continuity to ground or ignitor.<br><br>Cracked or broken ignitor extension lead. | A. Replace ignitor lead or ele<br><br>Tighten ground connectio ground path from ignitor p<br><br>Replace ignitor. |

# TROUBLESHOOTING GUIDE

**WARNING** FIRE OR EXPLOSION

TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

## Sealed Top Burners

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| 5. Unit continues to spark after it is turned off. | A. Shorted valve switch.<br><br>B. Switch has been pulled up and off of fixed position on valve so that it is not turned to off position with valve stem. | A. Replace switch. NOTE: If shorting is cau customer should be advi<br><br>B. Carefully reposition swit from off to high several ti broken. |

## All Models - Bake, Broil Burner

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| 1. Yellow tipped burner flame. | A. Too little primary air.<br>B. Burner head bent.<br>C. Of using L.P. Gas, range may not be properly converted. | A. Open air shutter on burn<br>B. Level burner head.<br>C. Check for proper L.P. co |
| 2. Flame blows away from burner. | A. Too much air.<br>B. Gas pressure too hign.<br>C. Heavy draft around cooktop area. | A. Slightly close air shutter t<br>B. Check pressure at orifice<br>C. Eliminate source of draft. |
| 4. Floating (lazy) flame. | A. Blocked flue, blocked burner. | A. Check for possible block |
| 5. Gas smell in kitchen. | A. Leak in pipe joints.<br>B. Valve leak.<br>C. Regulator plug loose. | A. Check gas connections needed.<br>B. Check valve and replace<br>C. Check and tighten regul |

# TROUBLE SHOOTING GUIDE

**WARNING** FIRE OR EXPLOSION

TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.

All Models - Bake, Broil Burner

| | PROBLEMS | | POSSIBLE CAUSE | | CORRECTION |
|---|---|---|---|---|---|
| 6. | Oven Burner/Broil Burner will not turn on. "SELECTOR" switch set on "MANUAL". Thermostat set at 350°/Broil Door latch in cook position. | A. | No 120 VAC to range. | A. | Check electric at wall o |
| | | B. | Inoperative ignitor. | B. | Check ignitor according ignitor. |
| | | C. | Defective selector switch. | C. | Check selector switch a |
| | | D. | Inoperative gas valve. | D. | Check gas valve accor valve. |
| | NOTE: The flat type ignitor used in these models has an operating current range of from 3.2 amps A.C. to 3.6 amps A.C. The gas valve is calibrated to open at slightly over 3.2 amps, since the ignitor will be hot enough to ignite any gas flowing from the burner. The current can be checked using a clamp-on ampmeter on an in-line ampmeter. If the current does not reach 3.2 amps, replace the ignitor. | E. | E.R.C., circuit board, probe or probe harness/connection. | E. | Check E.R.C., circuit bo according to instruction |
| | | F. | Inoperative thermostat. | F. | Check thermostat accor thermostat. |
| | | G. | Faulty wiring. | G. | Check wiring against ap be sure all terminals an tight. |
| | | H. | No gas to range. | H. | Check main gas line sh at inlet pipe. |
| | | I. | Low line voltage. | I. | Check wall outlet volta |
| | | J. | High gas pressure (LP). | J. | Check gas pressure (11 |
| 7. | Gas valve opens but Oven/Broiler burner does not ignite. Delayed ignition. | A. | BAKE/BROIL ignitor positioned too far from burner. | A. | Reposition BAKE/BROI |
| | | B. | Incorrect adjustment/or incorrect burner orifice on broil burner. (LP GAS). | B. | Adjust universal/orifice ( Install correct orifice (br |
| | | C. | Low gas pressure. | C. | Check gas pressure (6" WCP for LP). |
| | | D. | Low line voltage. | D. | Check voltage at wall o |
| | | | | | Check alignment of bur |

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All Models - Bake, Broil Burner

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| 8. Oven does not "AUTO BAKE" | A. Controls not set correctly. | A. Instruct customer on prope function. |
| | B. Selector Switch. | B. Check contacts on selecto procedures on Page 60. |
| | C. Defective timer. | C. Check contacts on timer. replace timer. |
| | D. Defective E.R.C./circuit board. | D. See E.R.C. system test pro |
| | E. Faulty wiring. | E. Check for broken wires or |
| | F. Defective thermostat. | F. Check thermostat contacts |
| 9. Oven does not operate in "DELAYED BAKE". | A. Controls not set correctly. | A. Instruct customer on prope BAKE" function. |
| | B. Selector Switch. | B. Check selector switch con procedures. |
| | C. Defective timer. | C. Check timer contacts acco |
| | D. Defective E.R.C./circuit board. | D. See E.R.C. system test pro |
| | E. Faulty wiring. | E. Check for broken wires or |
| 10. Oven does not operate in "SELF-CLEAN". | A. Controls not set correctly. | A. Instruct customer on prope |
| | B. Defective latch switch. | B. Check latch switch contac |
| | C. Defective Timer. | C. Check timer contacts acco |
| | D. Selector Switch. | D. See selector switch test pr |
| | E. Defective E.R.C./circuit board. | E. See E.R.C. system test pro |
| | F. Faulty wiring. | F. Check for broken wires or |

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All Models - Bake, Broil Burner

| PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|
| 10. (continued) Oven does not operate in "SELF-CLEAN". | G. Oven or broiler burner does not turn on. | G. Check unit in "BAKE"' and "E functions operate normally. If in "CLEAN" circuit. If not, ch shooting procedure in precee |
| | H. Defective thermostat. | H. Check thermostat contacts. S |
| 11. Oven light does not operate. | A. Defective oven lamp. | A. Check lamp and replace if ne bulb). |
| | B. Defective light switch. | B. Check switch contacts. |
| | C. Faulty wiring. | C. Check for broken wires and lo connections. |
| | D. Defective light socket. | D. Check light socket for continu |
| 12. Fluorescent lamp does not operate. | A. Defective lamp. | A. Check lamp and replace if ne |
| | B. Defective starter. | B. Replace starter. |
| | C. Defective ballast. | C. Check ballast for possible dar Replace if necessary. |
| | D. Faulty Wiring. | D. Check for broken wires and lo connections. |
| | E. Defective light switch. | E. Check switch contacts. See |

# DISASSEMBLY PROCEDURES - RST MODELS

**WARNING** **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

**OVEN BURNER IGNITOR**
1. Disconnect electricity at main disconnect plug.
2. Remove oven door, racks and oven bottom.
3. Remove lower storage drawer.
4. Locate the two (2) wire leads attached to the oven burner ignitor assembly. Access to the leads is located behind the storage drawer area. Remove the two (2) wire nuts securing the oven burner ignitor leads to the violet wires. (Note the position and configuration of ignitor assembly to the oven burner.)
5. Remove the screw securing the oven burner ignitor assembly mounting bracket to the oven burner and two (2) screws securing the ignitor bracket to the rear oven wall.
6. Remove the entire oven ignitor assembly. Slide ignitor to the left keeping ignitor assembly horizontal.

**BROIL BURNER IGNITOR**
1. Disconnect electricity at main disconnect plug.
2. Remove the oven door and oven racks.
3. Remove the two (2) hex head screws securing the broiler burner ignitor shield bracket to the mounting bracket attached to the cavity wall.
4. Pull ignitor slowly toward the front of the oven cavity until the white wires connecting to the ignitor are visible.
5. Grasp the one (1) "WHITE" ignitor lead and GENTLY PULL until the wire nut and approximately four (4) inches of the attached wire is inside the oven compartment. Repeat procedure for remaining ignitor lead. The hole in the left side of the oven wall is large enough to clean only "ONE" (1) wire nut at a time.
6. Remove the tape and wire nut from each of the ignitor assembly lead wires.
7. Reverse procedure to reinstall the broiler burner ignitor assembly. Reconnect wires tightly and retape the wire nuts. Be certain to insert wire nuts through oven back and combustion chamber.
   Then, pushing two (2) "WHITE" ignitor leads through the hole until the broiler burner ignitor mounting bracket is in position to be reattached to the broiler burner. Check position of the ignitor to burner. Correct position is important for proper ignition.
   **CARE MUST BE TAKEN WHILE HANDLING THE IGNITOR ASSEMBLY TO PREVENT BREAKAGE. DO NOT INTERCHANGE A ROUND IGNITOR FOR A FLAT TYPE OR VICE VERSA. THEIR CURRENT RATINGS ARE DIFFERENT.**

**OVEN ELECTRIC GAS VALVE**
1. Disconnect electricity at main disconnect plug.
2. Remove storage drawer.
3. Shut off main gas supply to range or shut off gas supply to gas valve at inlet pipe shut off valve.
4. Disconnect the four (4) wires from the gas valve assembly. Violet and Blue - Bake, Brown and White - Broil.
5. Disconnect main gas tubing from inlet pipe to gas valve at "elbow" on gas valve. Be certain to double wench the fitting to avoid damage.
6. Disconnect the broiler supply gas outlet line located on the right side of the gas valve assembly. Be certain to double wrench the fitting to avoid damage. Similarly disconnect the bake outlet line on the left side of the valve assembly.
7. Remove the four (4) NUTS from the mounting studs which secure the gas valve assembly to the gas valve mounting bracket.
8. Remove gas valve and gas inlet tubing from range, reinstall gas inlet tubing or new gas valve.
9. To reinstall gas valve assembly, reverse procedure.
10. Check all gas connections with soap for gas leaks.
11. Refer to the wiring diagram on the range for correct wire termination. Be certain all insulator sleeves are reinstalled and insulating pads are on the valve terminals.

**BROILER BURNER**
1. Disconnect electricity at main disconnect plug.
2. Remove oven door and oven racks.
3. Remove the two (2) screws securing the broiler burner to the top front of the broiler cavity.
   **NOTE:** Ignitor is not mounting to broiler but to top of broiler cavity. Edge flange of broiler rests on top of the ignitor shield flange.
4. Lower front of broiler and twist slightly to clear broiler flange from top of ignitor flange.
5. Pull down gently, then forward to remove broiler burner.
   **NOTE:** Care must be taken to avoid damaging the ignitor or the burner screening.
6. Reverse procedure to reinstall broiler burner. Be sure burner flange rests on top of ignitor flange.

**OVEN BURNER**
1. Disconnect electricity at main disconnect plug.
2. Remove oven door, oven racks, and oven bottom.
3. Loosen oven burner ignitor and set aside.
4. Remove screw securing oven burner to mounting bracket at front of lower burner base.
5. Gently turn and pull oven burner to come out.
6. Reverse procedure to reinstall oven burner.

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**OVEN BOTTOM**

1. Grasp both sides of the oven bottom at the front.
2. Lift up front and pull forward to free mounting tabs in rear.
3. Lift up oven bottom and pull out.
4. Reverse procedure to reinstall oven bottom.
   **NOTE:** Be sure rear tabs are properly positioned when reinstalling oven bottom. An improperly placed oven bottom will effect baking results.

**OVEN LAMP**

1. Disconnect electricity at main disconnect plug.
2. Unscrew (counterclockwise) knurled glass dome from light socket assembly. Remove light bulb.

**CAUTION**

**USE GLOVE WHEN REMOVING AND INSTALLING LAMP.**

3. Reverse procedure to reinstall oven lamp.

**SOCKET-OVEN LAMP**

1. Disconnect electricity at main disconnect plug.
2. Remove knurled glass dome - remove oven bulb.

**CAUTION**

**USE GLOVE WHEN REMOVING AND INSTALLING LAMP.**

3. Carefully displace fiberglass insulation away from rear of lamp socket.
4. With a flashlight to locate the four (4) tabs securing lamp socket to oven liner. While pushing lamp socket towards front of range, depress the four (4) tabs inward. Lamp socket will release into oven cavity.
5. Disconnect wires from lamp socket.
6. Reverse procedure to reinstall lamp socket. BE CERTAIN TO REPOSITION FIBERGLASS INSULATION AROUND LAMP SOCKET.

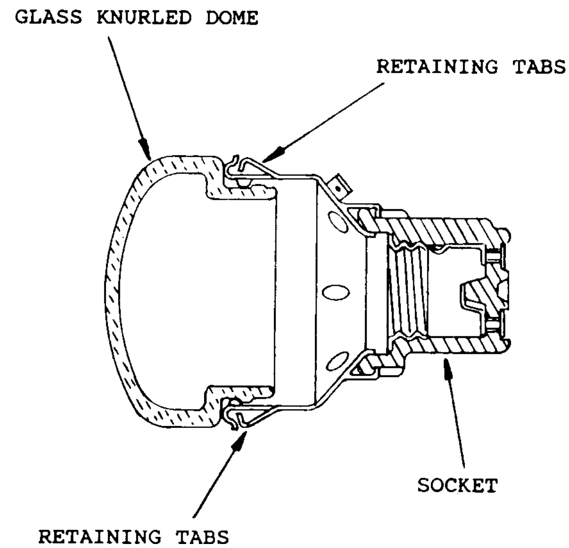



Figure 80 - Oven Light Assembly

**OVEN PROBE**
**ERC Models**

1. Shut off power to the range.
2. Pull range away from wall to gain rear access.
3. Remove eight (8) screws holding rear cover to range.
4. Disconnect two (2) wire harness to probe at disconnect plug.
5. Remove three (3) screws holding probe to oven cavity.
6. Pull probe and wire leads through hole in oven wall and remove from range.

**LOWER BURNER BOX**

1. Shut off power to the range.
2. Remove oven door, oven racks, and oven bottom.
3. Remove bake ignitor and bake burner.
4. Remove twenty-four (24) screws securing lower burner box to oven tank and insulation retainer.

**OVEN LINER (RST MODELS)**

**NOTE:** It is recommended that the oven be run through at least one (1) self-clean cycle prior to replacing the oven liner.

1. Disconnect electricity at main disconnect plug. Shut off gas at supply line shut off valve and disconnect gas line from range.
2. Pull range away from wall to gain rear access.
3. Remove oven door, oven racks, and oven bottom. Remove grates, burner bowls, and main top.

# DISASSEMBLY PROCEDURES - RST MODELS

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4. On models without sealed burners, remove eight (8) screws to burner box.
   On models with sealed burners, the burner caps and eight (8) main top mounting screws must be removed. Remove eight (8) burner box mounting screws.
5. Remove bake and broil ignitors. Remove bake and broil burners.
6. Remove lower burner box.
7. Remove oven light lens, light bulb and housing.
8. On ERC models, remove three (3) screws to probe, disconnect wire harness, and remove probe.
   On Models without ERC, remove two (2) screws to capillary tube shield and remove shield. Remove capillary tube through top of oven cavity.
9. Remove four (4) screws in top back wall of oven and ten (10) screws securing top combustion chamber to oven liner. Remove two (2) screws to chip cover and four (4) screws at top front of oven liner.
10. Remove storage drawer. Remove one (1) screw from each storage drawer track and remove track from range.
11. Remove eight (8) screws to rear cover.
12. Remove twenty-eight (28) screws securing rear insulation retainer. Remove two (2) screws holding dilution flue to rear retainer.
13. Remove four (4) screws securing on backguard support to side panel (either side can be removed).
14. Push down on rear insulation retainer and push up and in on oven liner mounting bracket to free bracket from retainer.
15. Grasp lip of tank and gently maneuver the tank forward to remove it from the range.
16. Remove two (2) screws to each oven liner mounting bracket.
17. Reinstall brackets on replacement liner. Reverse procedure to reinstall replacement liner.
18. Reconnect range to electricity and gas. Be sure to check gas connections for possible leaks. Use a leak detector or soap solution.

**OVEN LINER DISASSEMBLY (RSS MODELS)**

1. Disconnect electricity at main disconnect plug. Turn off gas supply and disconnect range from gas supply.
2. Remove burner grates, main top, and top burners.
3. Remove burner box.
4. Remove thermostat capillary bulb from capillary shield, and remove capillary shield.
5. Remove oven bottom, oven burner ignitor and oven burner. Also remove broil burner ignitor and broil burner.
6. Remove oven light lens and oven light socket.
7. Remove the ten (10) screws that surround the recessed cavity for the broil burner.

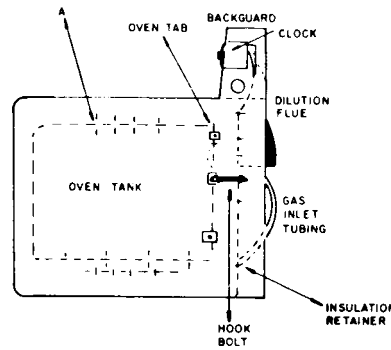



Figure 81

8. Remove the four (4) screws mounting on the rear of the oven liner. Remove screws securing front top lip of liner to front frame.

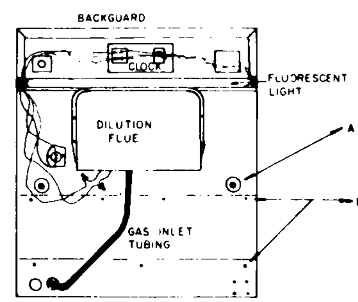



Figure 82

9. Remove the twenty-four (24) screws that secure the recessed cavity fro the oven burner.

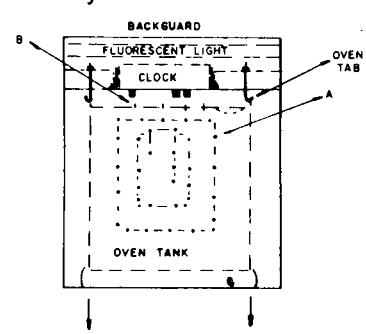



Figure 83

10. Remove rear cover plate and screws that secure the insulation retainer.

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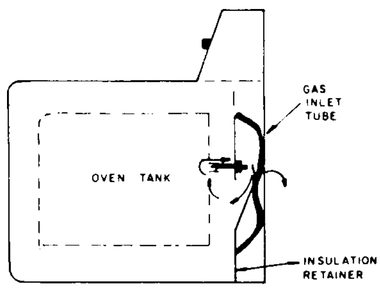



Figure 84

11. Remove rear tank retention clips.
12. Grasp the lip of the oven tank and gently maneuver the tank forward to free itself from the range.
13. Reverse procedure to reinstall hardware.
14. Reconnect range to electricity and gas. Check main gas connection with soap suds.

**BACKGUARD GLASS**
1. Shut off power to the range.
2. Remove clock or ERC knobs by pulling straight out from glass.
3. Remove two (2) screws securing lower trim to backguard control panel.
4. Tilt glass out at bottom to clear clock or ERC knobs and light switch stem (if applicable).
5. Remove glass and lower trim.
6. When replacing the glass on models with an oven light and/or fluorescent light, the light switch bezel and retainer clip must be removed from glass and transferred to replacement glass.

**LOWER BACKGUARD TRIM**
The lower backguard trim can be replaced by using the backguard glass removal procedure.
When replacing the lower trim, the backguard heat shield must be removed from trim and attached to replacement trim.

**ERC REMOVAL**
1. Disconnect electricity at main disconnect plug.
2. Remove knobs from ERC by pulling forward on knobs.
3. Remove backguard glass.
4. Remove four (4) screws and spacers securing ERC to mounting bracket.
5. Disconnect two (2) wire connectors and remove ERC.

**CLOCK**
1. Shut off power to range.
2. Remove backguard glass.
3. Remove screws securing clock to the mounting bracket.
4. Pull clock forward and disconnect wiring.
5. When reinstalling clock, refer to the appropriate wiring diagram to assure correct wire termination.

**FLUORESCENT LAMP (Backguard) (RSS MODELS)**
1. Disconnect electricity at main disconnect plug.
2. Remove bottom trim and grille supporting glass. Remove knobs and glass.
3. Gently twist fluorescent while pulling forward to loosen end pins in sockets.
4. Remove light.
5. Reverse procedure to reinstall light.

**FLUORESCENT LAMP (RST MODELS)**
1. Disconnect electricity at main disconnect plug.
2. Remove backguard glass.
3. Fluorescent lamp is now accessible. Twist lamp to remove from sockets.

**LIGHT SWITCH - BACKGUARD MOUNTED**
1. Disconnect electricity at main disconnect plug.
2. Remove backguard glass.
3. Remove fluorescent lamp (if applicable) to prevent damage to lamp.
4. Remove 1/2" nut securing switch to backguard control panel.
5. Remove four (4) screws (two (2) each side) securing backguard control panel to end caps and tilt control panel forward.
   **NOTE:** There is a spacer bracket located between the control panel and the top trim which will be loose when the control panel is moved forward. Replace with angled edge toward back and angle facing downward.
6. Disconnect wire nuts to switch leads and remove switch.

**BALLAST - FLUORESCENT LIGHT (RST MODELS)**
1. Shut off power to the range.
2. Remove backguard glass.
3. Remove fluorescent lamp to prevent damage.
4. Remove four (4) screws securing backguard control panel to end caps and tilt control panel forward.
   **NOTE:** There is a spacer bracket located between the control panel and the top trim which will be loose when the control panel is moved forward. Replace with angled edge toward back and angle facing downward.

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5. Remove two (2) screws securing ballast to control panel.
6. Disconnect wires to ballast.

**BALLAST (RSS MODELS)**
1. Disconnect electricity at main disconnect plug.
2. Remove rear coverf plate from backguard.
3. Disconnect leads to terminals on ballast.
4. Remove the two (2) screws securing ballast to backguard.
5. Reverse procedure to reinstall replacement ballast.

**STARTER - FLUORESCENT LIGHT**
1. Shut off power to the range.
2. Remove backguard glass.
3. Remove fluorescent lamp to prevent damage.
4. Remove four (4) screws securing backguard control panel to end caps and tilt control panel forward.
   **NOTE:** There is a spacer bracket located between the control panel and the top trim which will be loose when the control panel is moved forward. Replace with angled edge toward back and angle facing downward.
5. Push in and turn starter counterclockwise to remove.

**STARTER SOCKET**
1. Follow Steps 1 - 5 for starter removal.
2. Remove two (2) screws securing starter socket to backguard control panel.
3. Disconnect wires to start socket and remove socket.

**FLUORESCENT LAMP SOCKET**
1. Shut off power to the range.
2. Remove backguard glass.
3. Remove fluorescent lamp.
4. Remove four (4) screws securing backguard control panel to end caps.
   **NOTE:** There is a spacer bracket located between the control panel and the top trim which will be loose when the control panel is moved forward. Replace with angled edge toward back and angle facing downward.
5. Remove two (2) screws securing lamp socket to bracket.
6. Cut wire leads at socket and remove socket.
   Use lamp socket kit, Part Number 89316, to replace socket. Kit contains new socket and two (2) terminals. Strip wire ends and crimp terminals to wires. Snap terminals into socket.

**INDICATOR LIGHT - BACKGUARD MOUNTED**
1. Shut off power to the range.
2. Remove backguard glass.
3. Remove four (4) screws securing backguard control panel to end caps.
   **NOTE:** There is a spacer bracket located between the control panel and the top trim which will be loose when the control panel is moved forward. Replace with angled edge toward back and angle facing downward.
4. Depress tabs on indicator and remove from control panel.
5. Disconnect wires to indicator.

**BACKGUARD TOP TRIM**
1. Shut off power to the range and disconnect main gas line.
2. Pull range away from wall to gain rear access.
3. Remove backguard glass.
4. Remove eight (8) screws securing rear cover.
5. Remove two (2) screws securing top trim to end cap.
6. Remove either end cap.
7. Remove center spacer. This spacer is located between the clock bracket and control panel in the front and the top trim in back. Angled end is toward the back and angle faces downward.
8. Remove top trim by gently pulling sideways to disengage trim from remaining end cap.
   When reassembling, check main gas connections for possible leaks.

**BACKGUARD END CAP**
1. Shut off power to the range. Shut off gas supply and disconnect main gas line to range.
2. Pull range away from wall to gain rear access.
3. Remove backguard glass.
4. Remove eight (8) screws securing rear cover.
5. Remove two (2) screws securing end cap to control panel.
6. Remove one (1) screw securing end cap to top trim.
7. Remove two (2) screws securing end cap to backguard support.
8. Remove end cap by gently pulling sideways to disengage end cap from top trim.

**BACKGUARD CONTROL PANEL**
1. Shut off power to the range.
2. Remove backguard glass.
3. Remove fluorescent lamp (if applicable).
4. Remove four (4) screws securing control panel to end caps and tilt control panel forward.
5. Remove components (clock or ERC, indicator light, fluorescent light components, light switch (es), etc.) from control panel and assemble them on replacement panel.

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**BACKGUARD SUPPORT**
1. Shut off power to the unit.
2. Disconnect main gas line from unit. Pull unit away from wall to gain rear access.
3. Remove eight (8) screws securing rear cover to range.
4. Remove two (2) screws securing backguard end cap to support.

**CLOCK OR ERC KNOBS**
1. The clock and ERC knobs are removed by pulling them straight out from the clock or ERC.

**VENT TRIM**
1. Remove two (2) screws securing vent trim to lower backguard trim.

**BURNER CAPS**
**Models with Sealed Burners**
1. Shut off power to the range. Remove burner grates.
2. Lift burner caps straight up from main top.

**MAIN TOP**
**Models without Sealed Burners**
1. Shut off power to the range.
2. Remove grates and burner bowls (if applicable).
3. Main top is removed by lifting top up in front and then forward.

**MAIN TOP**
**Models with Sealed Burners**
1. Shut off power to the unit.
2. Remove burner grates and burner caps.
3. Remove eight (8) screws securing main top to venturi. Lift main top up and forward to remove.

**MAIN TOP TRIM**
1. Shut off power to the range.
2. Remove main top and lay top on a protected surface with top facing downward.
3. Remove two (2) screws and spacers securing trim to main top and remove trim.

**CONTROL PANEL**
1. Shut off power to the range.
2. Remove burner grates, burner bowls, and main top.
3. Remove top burner knobs. On models without the ERC, the thermostat and selector switch knobs must also be removed. Remove oven door.
4. Remove five (5) screws securing control panel to front frame filler strip.
5. Remove two (2) screws securing end caps to side panel. Pull control panel front and then up to remove from valve stems. Remove filler strip located between control panel and burner box on models without sealed burners.
6. To remove end caps, remove two (2) screws securing each end cap to control panel.
7. Remove two (2) screws securing thermostat to control panel and two (2) screws securing selector switch to control panel (except ERC models).
   On Models RST307 and 309, the indicator lights, rocker switch, and clock display board mounting bracket must be removed from the control panel.

**OVEN LIGHT SWITCH**
**Slide In Models**
1. Disconnect electricity at main disconnect plug.
2. Remove control panel.
3. Remove wires from terminals on light switch.
4. Gently squeeze clips on switch and push through front of control panel.
5. Reverse procedure to reinstall new switch.

**INDICATOR LIGHT REMOVEAL (OVEN, CLEAN)**
**Slide In Models**
1. Shut off power to the range.
2. Partially remove the control panel. Follow Control Panel Removal Procedures, Steps 2 - 5.
3. Remove the indicator from the indicator lens by sliding the indicator spring finger tabs off of the lens. The indicator lens can now be removed by pushing it out of the control panel.
4. Disconnect the indicator wire leads.
5. Follow reverse procedures to reinstall the indicator light.

**OVEN-ON/CLEAN INDICATOR LIGHT**
1. Disconnect electricity at main disconnect plug.
2. Remove rear cover plate from backguard.
3. Remove screws securing trim (below gackgurard glass) - remove trim.
4. Support backgurard glass with one hand then remove clock knobs.
5. Tilt glass out at bottom to clear clock stems.
6. Depress tabs on indicator light and push light assembly through hole in panel.
7. Transfer wires to new indicator light.
8. Reverse procedure to reinstall indicator light.

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### CLOCK DISPLAY BOARD REMOVAL
**Slide In Models**

1. Shut off power to the range.
2. Partially remove the control panel. Follow Control Panel Removal Procedures, Steps 2 - 5.
3. Remove the six (6) clock control buttons by pulling them out of the clock display board.
4. Remove the left rear and right rear top burner knobs.
5. Remove the two (2) screws that secure the clock display board mounting bracket to the control panel.
6. Disconnect the wire harness connector plug from the back of the display board and remove the display board and mounting bracket assembly.
7. Lift the clock glass out of the mounting bracket.
8. Remove the four (4) clock display board mounting screws and remove the board from the bracket.
9. Follow reverse procedures to install the clock display board.

### TOP BURNER ACTUATOR SWITCH

1. Disconnect electricity at main disconnect plug.
2. Remove top burner knobs.
3. Remove screw under control panel and remove screws securing control panel end caps on top left and right sides. Pull control panel towards you then lift up on control panel to clear top burner valve stems.
4. Depress tab inside top burner actuating switch (small oblong hole - one (1) for each wire). To remove wire, see Figure Below.
5. Lift top burner actuating switch off top burner valve. **NOTE:** Bared wires are pushed into position and are self locking inside switch. Best results are obtained by baring a fresh strip of wire into switch.
6. Reverse procedure to reinstall switch. Switch must be seated properly on valve. Switch "snaps" onto valve stem.

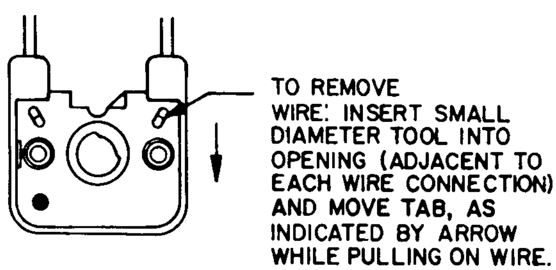



Figure 85 - Top Burner Switch

### TOP BURNER VALVE

1. Disconnect electricity at main disconnect plug.
2. TURN OFF GAS SUPPLY TO RANGE.
3. Remove main top and control panel.
4. Lift off top burner actuating switch from top burner valve to be replaced.
5. On models without sealed burners, remove top burner to valve being replaced. On models with sealed burners, disconnect tubing from valve to venturi at valve, or remove top burner assembly.
6. Using a 1/4" nut driver - remove nut securing top burner valve to manifold.
7. Reverse procedure to reinstall top burner valve. BE CERTAIN TO CHECK TOP BURNER VALVE FOR GAS LEAK WITH LEAK DETECTOR OR WARM SOAPY WATER.

### MANIFOLD

1. Shut off power to the range. Shut off gas supply to the range.
2. Remove grates, burner bowls, and main top.
3. Partially remove control panel. Follow Control Panel Disassembly Procedure, Steps 3 - 5.
4. Remove one (1) screw to each top burner valve and remove valve from manifold.
5. Disconnect feed tube to manifold. On sealed burner units there are two (2) feed tubes which must be disconnected.
6. Remove two (2) screws securing manifold to front frame.

   When replacing manifold, remove feed tube fitting (s) and reinstall fitting with new sealer in replacement manifold.

   BE CERTAIN TO CHECK MANIFOLD, BURNER VALVE, AND FEED TUBE(S) CONNECTIONS FOR GAS LEAKS WITH LEAK DETECTOR OR SOAP SOLUTION.

# DISASSEMBLY PROCEDURES - RST MODELS

**WARNING** **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

**OVEN THERMOSTAT**

1. Disconnect electricity at main disconnect plug.
2. Remove oven door and oven racks.
3. Remove burner grates and main top.
4. Remove burner grates and main top.
5. Remove control panel, Steps 3 - 5.
6. Remove burner box.
7. Remove thermostat capillary from shield on the side of the oven liner.
8. Gently pull capillary lead through the hole in the top of the oven liner.
9. Remove two (2) screws holding thermostat in place.
10. Transfer wires to new thermostat - one for one (point to point). Be certain to check wiring diagram to assure proper wire termination to thermostat.
11. Reverse procedure to reinstall new thermostat. **NOTE:** Be certain to check the calibration of the thermostat per instructions. If the thermostat is a warranty item, be careful not to damage or kink the capillary tube. Repack thermostat in original carton.

**WARNING**

**THE CAPILLARY TUBE OR BULB OF THIS THERMOSTAT, USED IN THE SELF-CLEAN MODELS, CONTAINS A MIXTURE OF CAUSTIC NATURE. DO NOT CUT OR BREAK CAPILLARY TUBE. IF TUBE OR BULB IS BROKEN, THE MIXTURE IS COMBUSTIBLE IF IT COMES IN CONTACT WITH MOISTURE AND CAN BE HARMFUL IF IT COMES IN CONTACT WITH EYES, SKIN, AND CLOTHING. IF BROKEN, A CRIMP MADE WITH PLIERS ON EACH SIDE OF THE BREAK WILL RESEAL THE UNIT. If contacted by skin, REMOVE BY SCRAPING OFF WITH KNIFE, flush skin and knife with water.**

**SELECTOR SWITCH**

1. Disconnect electricity at main disconnect plug.
2. Remove top burner grates and main top.
3. Remove control panel.
4. Remove two (2) screws securing selector switch to control panel.
5. Transfer wires to new selector switch - one (1) for one (1) (point to point).
6. Refer to wiring diagram to assure proper wire termination.
7. Reverse procedure to reinstall new selector switch.

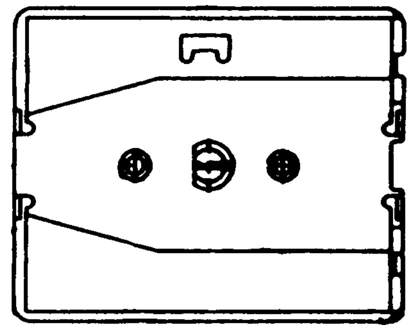


Figure 86 - Front Of Range
Selector Switch Mounting Position

**OVEN LATCH SWITCH**

1. Disconnect electricity at main disconnect plug.
2. Remove burner grates and main top.
3. Remove two (2) screws securing latch cover to burner box and remove cover.
4. Disconnect wires to oven latch switch.
5. Remove screws holding switch to bracket.
6. Refer to wiring diagram to assure proper wire termination.
7. Reverse procedure to reinstall new switch.

**DOOR LATCH ASSEMBLY (RST MODELS)**

1. Shut off power to the range.
2. Remove grates, burner bowls, and main top.
3. Remove control panel. Follow Control Panel Disassembly Procedures, Steps 3 - 5.
4. Remove two (2) screws to latch cover.
5. Remove two (2) screws securing latch handle to latch assembly.
6. Remove two (2) screws securing latch switch mounting bracket to latch assembly.
7. Remove six (6) screws (three (3) each side) securing burner box to side frames and two (2) screws securing manifold to burner box. Remove burners. On sealed burner models, do not remove screws securing manifold to burner box. Remove the two (2) screws securing manifold to filler trim. Burner box can not be lifted slightly to gain access to latch assembly.

**CAUTION**

**CARE MUST BE TAKEN TO AVOID BENDING OR CRIMPING TUBING.**

8. Remove screw securing wire clip to insulation retainer.
9. Remove four (4) screws securing latch assembly to mounting bracket.

**WARNING** **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

10. Open oven door and remove four (4) screws securing latch assembly to front frame. Latch assembly can now be removed.
    When replacing latch assembly latch switch and mounting bracket should be mounted on new latch assembly.
    Be sure there is no insulation in latch hole. When reinstalling latch cover, be sure louvers are facing the rear of the range.

**DOOR LATCH ASSEMBLY (RSS MODELS)**

1. Disconnect electricity at main disconnect plug.
2. Remove burner grates and main top.
3. Remove control panel and burener box.
4. Disconnect wires to oven latch switch and removee latch switch.
5. Remove the four (4) screws on the front frame holding the latch bracket in place.
6. Remove the four (4) screws holding the latch assembly to the latch bracket.
7. Remove latch handle and gently pull out assembly.
8. Reverse procedure to reinstall latch assembly.

**BURNER BOX**
**Models without Sealed Burners**

1. Shut off power to the range.
2. Remove grates, burner bowls, and main top.
3. Remove top burners.
4. Remove eight (8) screws securing burner box to side panels and manifold.
5. To replace the burner box, remove two (2) screws to each top burner mounting bracket, disconnect ignitor lead from spark module, remove latch plate, and reassemble on new burner box. Reattach ignitor lead to spark module.

**TOP BURNERS**
**Models without Sealed Burners**

1. Shut off power to the range.
2. Remove burner grates, burner bowls, and main top.
3. Remove shipping screw securing top burner to mounting bracket.
4. Twist burner slight to disengage from mounting bracket and pull burner toward rear of range.
   When reassembling, be sure venturi tube is located properly on burner valve.

**MOUNTING BRACKET - TOP BURNER**
**Models without Sealed Burners**

1. Shut off power to the range.
2. Remove grates, burner bowls, and main top.
3. Remove two (2) screws securing mounting bracket to the burner box.
4. Remove burner box.
5. Disconnect ignitor lead from spark module.
6. Remove ignitor lead retaining clip and grounding strap. Remove ignitor lead from bracket.

**IGNITOR GROUNDING BRACKET**
**Models without Sealed Burners**

1. Shut off power to the range.
2. Remove grates, burner bowls, and main top.
3. Remove top burners.
4. Remove two (2) screws securing the top burner mounting support to the burner box.
5. Straighten tabs on the ignitor grounding bracket and remove bracket from the top burner mounting support. **NOTE:** Be certain the ignitor grounding bracket is tight on the top burner support. Also, be sure the gap between the ignitor grounding bracket dimple and top of ignitor is 1/8" (-1/32", + 0").

**TOP BURNER IGNITOR (RST MODELS)**
**Models without Sealed Burners**

1. Shut off power to the range.
2. Remove burner grates, burner bowls, and main top.
3. Remove top burners.
4. Remove burner box.
5. Disconnect high voltage ignitor leads from spark module.
6. Remove two (2) screws securing the top burner mounting support to the burner box.
7. Straighten tabs on the ignitor grounding bracket and remove bracket from the top burner mounting support.
8. Remove speed clip securing the spark ignitor to the top burner mounting bracket. (Clip must be reused, do not break.)
9. Reverse procedure to reinstall new top burner ignitor.
   **NOTE:** Be certain the ignitor grounding bracket is tight on the top burner support. Also, be sure the gap between the ignitor grounding bracket dimple and top of ignitor is 1/8" (-1/32", + 0").

**WARNING** **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

**TOP BURNER SPARK IGNITORS (RSS MODELS)**

1. Disconnect electricity at main disconnect plug.
2. Remove top burner grates and main top.
3. Remove top burner assembly (right and left).
4. Remove control panel.
5. Remove eight (8) right screws securing burner box in place.
6. Gently maneuver control panel to free burner box.
7. Disconnect high voltage ignitor leads from spark module.
8. Remove two (2) screws securing the top burner mounting support to the burner box.
9. Straighten tabs on the ignitor grounding bracket and remove bracket from the top burner mounting support.
10. Remove speed clip securing the spark ignitor to the top burner mounting bracket (Clip must be re-used, do not break.)
11. Reverse procedure to reinstall new top burner ignitor. NOTE: Be certain the ignitor grounding bracket is tight on the top burner support. Also be sure the gap between the ignitor grounding bracket dimple and top of ignitor is 1/8" (-1/32" + 0").

**BURNER BOX**
**Sealed Burner Models**

1. Shut off power to the range. Shut off main gas supply.
2. Remove grates, burner caps, and main top.
3. Remove six (6) screws securing burner box to side panels.
4. Remove control panel. Remove two (2) screws securing manifold to filler trim.
5. Disconnect two (2) feed tubes to manifold.
6. Lift up burner box and disconnect electrode leads at spark module.
7. To replace the burner box, remove venturi assemblies and electrode leads, burner box baffles with seal, manifold and tubing to venturi. Reassemble components on replacement burner box. Be sure baffle seal is correctly positioned.
   Check all gas connections for gas leaks with leak detector after reassembly.

**TOP BURNER VENTURI**
**Sealed Burners**

1. Shut off power to the range. Shut off main gas supply to the range.
2. Remove grates, burner caps, and main top.
3. Disconnect feed tube from burner valve to venturi.
4. Remove two (2) screws securing venturi to burner box.
5. Remove screw securing mounting bracket to venturi and remove electrode from bracket.
   Be sure to check venturi feed tube connection for gas leaks with leak detector after reassembly.

**ELECTRODE WIRE WITH SOCKET**
**Sealed Burner Units (Aluminum Tubing Gas Feed)**

1. Shut off power to the range. Shut off main gas supply to the range.
2. Remove grates, burner caps, and main top.
3. Disconnect tube to venturi. Remove two (2) screws securing venturi assembly to burner box.
4. Remove screw securing mounting bracket to venturi assembly and remove electrode socket.
5. Remove burner box.
6. Disconnect electrode at spark module.
   Check gas connections for leaks with leak detector after reassembly.

**BURNER BOX BAFFLE**
**Sealed Burner Models (Only On Aluminum Tubing Gas Feed)**

1. Shut off power to the range.
2. Remove grates, burner caps, and main top.
3. Remove three (3) screws securing baffle to burner box. Baffle and silicone seal can now be removed. Silicone seal must be located on baffle to assure proper top burner operation.

**SPARK MODULE (FREE STANDING MODELS)**

1. Disconnect electricity at main disconnect plug. Shut off main gas supply to the range.
2. Remove main top.
3. Remove burner box.
4. Remove two (2) screws securing spark module bracket to insulation retainer.
   On models without sealed burners, the spark module is located on the left side of the range.
   The sealed burner models incorporate a spark module on both the left and right sides of the range or one (1) spark module with four (4) outputs on left side.
5. Remove screw securing module to mounting bracket. Bend retaining tab to remove module from bracket.
6. Disconnect wire leads to module.
   Check wiring diagram for proper wire identification when reinstalling.
   Check gas connections for leaks with leak detector or soap solution.

# DISASSEMBLY PROCEDURES - RST MODELS

**WARNING** **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

**SPARK MODULE (SLIDE - IN MODELS)**
1. Disconnect electricity at main disconnect plug.
2. Remove the top burner grates and main top.
3. Remove control panel.
4. Remove top burner assembly (right and left).
5. Remove eitght (8) screws securing the burner box in place.
6. Gently maneuver control panel to free burner box and move burner box to right to expose spark module.
7. Disconnect both spark ignitor leads coming from spark module.
8. Remove viloet and white wires on spark module.
9. Remove the module mounting bracket on left top front insulation retainer.
10. Replace with new module.
11. Reverse procedure to reinstall module.

**LATCH HANDLE KNOB**
1. Shut off power to the range.
2. Open oven door to full open position.
3. Remove screw securing knob to latch handle.

**LATCH HANDLE**
1. Shut off power to the range. Shut off main gas supply.
2. Remove main top.
3. Remove two (2) screws securing latch cover plate to burner box.
4. Remove two (2) screws securing latch handle to latch assembly and remove handle.

**OVEN DOOR**
1. The oven door is removed by opening the door to the first position and lifting the door straight off the hinges.

**STORAGE DRAWER**
1. Pull storage drawer out to stop position. Depress retaining tabs on drawer runners and slide drawer assembly out of drawer track or pull up on front of drawer and slide out of runner.

**PRESSURE REGULATOR**
1. Disconnect electricity at main disconnect plug.
2. TURN OFF GAS SUPPLY TO RANGE.
3. Remove storage drawer assembly.
4. Disconnect gas inlet supply lines.
5. While holding the inlet tube with a pipe wrench, unscrew pressure regulator.
6. Reverse procedure to reinstall new pressure regulator.
7. Check replacement for leaks with warm soapy water.

**SUPPLY CORD**
1. Shut off power to the range.
2. Remove storage drawer.
3. Remove screw securing wire clip to bottom shelf.
4. Disconnect supply cord from male plug on bottom shelf.
5. Disconnect supply cord from wall outlet.

**MALE LOADING PLUG**
1. Shut off power to the range.
2. Remove storage drawer.
3. Disconnect supply cord from male plug.
4. Remove screw securing wire cover to bottom shelf.
5. Disconnect wires from male plug.
6. Depress tabs on plug and push plug through lower shelf.

**SHUT OFF VALVE**
1. Shut off power to the range. Shut off gas supply at main shut off valve.
2. Remove storage drawer.
3. Disconnect tubing from shut off valve to gas valve.
4. Disconnect shut off valve from inlet pipe.
5. When reassembly replacement valve, check all connections for gas leaks with leak detector or soap solution.

**INLET PIPE**
1. Shut off power to the range.
2. Shut off gas supply at main shut off valve.
3. Remove storage drawer.
4. Disconnect gas inlet line at regulator. Disconnect tubing to inlet pipe.
5. Remove two (2) screws securing inlet pipe to bottom shelf.
   To replace the inlet pipe, transfer regulator and fittings to replacement inlet pipe.
   Check all connections for gas leaks with leak detector or soap solution.

**CIRCUIT BOARD**
**(Two (2) Piece ERC)**
1. Shut off power to the range.
2. Remove storage drawer.
3. Remove screw securing wire cover to bottom shelf.
4. Disconnect wiring to circuit board.
5. Carefully remove circuit board from four (4) circuit board supports in rear insulation retainer.
   When reassembling, check appropriate wiring diagram for proper termination.

**CIRCUIT BOARD - CLOCK**
**Slide In Models**
1. Use ERC Circuit Board Removal Procedure.

# DISASSEMBLY PROCEDURES - RST MODELS

**WARNING** **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

**CLOCK/TIMER WIRE HARNESS (Ribbon Cable Removal)**
**Models RST307, RST308, RST309**

The wire harness (ribbon cable) for the clock is routed down the left side of the range behind the left side panel. Follow the procedures below to replace the cable.

1. Shut off power to the range.
2. Remove the range from the cabinet.
3. Partially remove the control panel. Follow the Control Panel Removal Procedures, Steps 3 - 5.
4. Disconnect the wire harness plug connector from the back of the clock display board.
5. Remove the storage drawer.
6. Remove the P.C. board cover mounting screw and disconnect the wire harness plug connector from the P.C. board.
7. Remove the three (3) left side burner box mounting screws.
8. Remove left side panel to gain access to cable.
9. Reverse procedure to install clock cable.

**SIDE PANEL REPLACEMENT**

**NOTE:** Left or right side panel should be replaced one at a time. Do not attempt to remove both side panels as lack of support may cause subsequent damage/twist to backguard.

1. Disconnect electrical supply at wall socket.
2. In most installations the "gas has to be turned off" and supply line disconnected from range. PULL RANGE FORWARD.
3. Remove oven door assembly and storage drawer assembly, burner grates and burner bowls.
4. Remove top burner grates, main top, and the one (1) screw securing control panel to side panel (screws located top left or top right of control panel).
5. Remove the three (3) screws securing side panel to burner box.
6. Support range off floor 4-6 inches, then remove the four (4) screws from bottom flange of side panel.
7. Remove the rear backguard cover panel.
8. Remove the four (4) screws securing backguard support to side panel.
9. Remove the five (5) screws securing rear of side panel to insulation retainer.
10. Remove the six (6) screws securing front of side panel to front flame flange.
11. Move rear of side panel away from range, then move side panel forward to clear flange on front frame.
12. Reverse procedure to reinstall side panel.
    BE CERTAIN TO CHECK GAS CONNECTION WITH LEAK DETECTOR OR WARM SOAPY WATER.

**BOTTOM BRACE**

1. Shut off power to the range.
2. Shut off main gas supply and disconnect supply line from range. Pull range forward.
3. Remove oven door assembly and storage drawer assembly. Remove top burner grates and burner bowls.
4. Support range four (4) to six (6) inches off of floor. Remove four (4) screws securing bottom brace to side panel.
5. Remove two (2) screws securing brace to front frame.
6. Reverse procedure to install new brace. Screw leveling legs into replacement brace.
   Be sure to level range after installation. Check gas connection for leaks with leak detector or soapy water.

**STORAGE DRAWER TRACK**

1. Shut off power to the range.
2. Remove storage drawer.
3. Storage drawer track is fastened to the front frame with one (1) screw. The track fits into a slot in the rear insulation retainer. **NOTE:** The "TAB" on the front of the drawer track and the storage drawer runner "CATCH" are color coded. When reassembling, be sure to match black "TAB" to black "CATCH" and gray "TAB" to gray "CATCH".

**OVEN DOOR HINGE**

1. Remove oven door assembly from the range.
2. Remove the two (2) screws securing the hinge to the side frame.
3. Carefully open the hinge fully, and insert an object the approximate thickness of a screw in slot under door lock to keep hinge open. **NOTE:** Be careful not to allow the object to slip out, causing the hinge to snap back, possibly causing injury to the installers fingers.

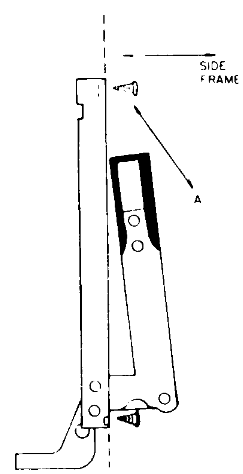



Figure 87 - Left Side View (Closed)

**WARNING** **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

4. Slide hinge up into the frame and then out being sure to clear the hinge slot.
5. Slide hinge assembly out.
6. Reverse procedure to reinstall replacement hinge. The replacement hinge is received in a closed position.

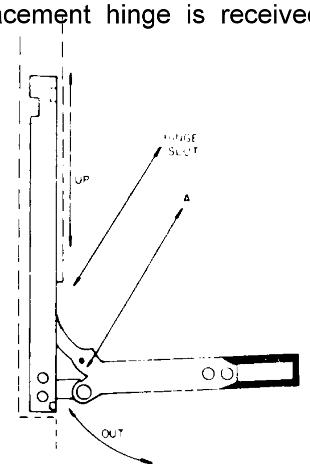



Figure 88 - Left Side View (Open)

**OVEN DOOR FRAME - BLACK GLASS DOOR**
1. Remove door from range and place face up on a protected surface.
2. Remove six (6) screws securing door frame to oven door backer and lift frame off of door backer.
3. Reverse procedures to reinstall door frame.

**BLACK GLASS PANEL**
1. Remove oven door frame from range and place face up on a protected surface.
2. Remove six (6) screws securing door frame to door backer and lift frame off of door backer.
3. Lift black glass panel out of top door trim.

**OVEN DOOR HANDLE - BLACK GLASS DOOR**
1. Remove oven door from range and lay door face up on a protected surface.
2. Remove six (6) screws securing door frame to door backer.
3. Lift black glass panel out of top trim.
4. Remove three (3) screws securing top trim to door backer.
5. Remove four (4) screws securing door handle and spacers to top trim.
6. Reverse procedure to reassemble.

**DOOR HANDLE - PORCELAIN DOOR**
**Model RST354**
1. Remove oven door assembly from the range and place door on a protected surface.
2. Remove the six (6) screws securing the oven door backer to the oven door panel.
3. Remove the four (4) nuts from the four (4) bolts securing the oven door handle to the oven door panel.
4. Reverse procedure to reinstall oven door handle.

**DOOR PANEL - PORCELAIN DOOR**
**Model RST354**
1. Remove door from range and place door on a protected surface.
2. Remove six (6) screws securing door panel to door liner and remove panel.
3. Remove four (4) nuts securing door handle to door panel.
4. Reverse procedure to reinstall panel.

**OVEN DOOR GASKET**
1. Remove oven door assembly from range and place door on a protected surface.
2. Remove the six (6) screws securing the oven door backer to the oven door frame. On Model RST354 the backer is attached to the outer door panel.
3. Remove door frame and oven door glass.
4. Remove two (2) screws securing heat shield to backer.
5. Remove the fourteen (14) screws securing the door backer to subbacker. NOTE POSITION OF DOOR GASKET FOR CORRECT REASSEMBLY.
6. Carefully position new door gasket around perimeter of sub backer and cross over door gasket at bottom of sub backer. Tuck gasket in at corners.
7. Reinstall - BUT DO NOT TIGHTEN THE FOURTEEN (14) SCREWS.
8. Position door gasket between door backer and sub backer as shown. Then tighten all screws to pinch gasket between door backer and sub backer.
   Be sure hinge pins and rubber bumpers are in place when reassembling.

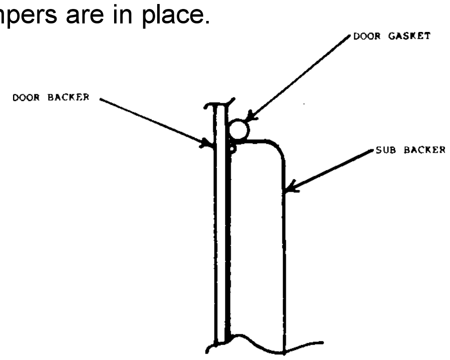
# DISASSEMBLY PROCEDURES - RST MODELS

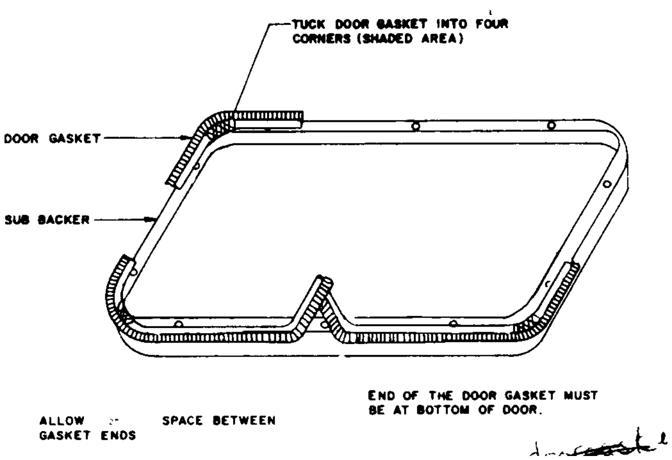
**WARNING** — **FIRE OR EXPLOSION - TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY, OR DEATH, DISCONNECT POWER TO THE OVEN BEFORE SERVICING.**

**DOOR GLASS - INNER**

1. Remove oven door assembly from the range and place door on a protected surface.
2. Remove the six (6) screws securing the oven door backer to the oven door frame. On Model RST354 the backer is attached to the outer door frame.
3. Remove two (2) screws securing heat shield to door backer.
4. Remove the fourteen (14) screws securing the door backer to the sub backer. Gently remove door backer. NOTE POSITION OF DOOR GASKET FOR CORRECT REASSEMBLY.
5. Remove insulation and the eight (8) screws securing the window assembly to the door backer.
6. Gently remove window assembly.
7. Reverse procedure to reinstall.

   When reassembling, be sure hinge pins and rubber bumpers are in place.



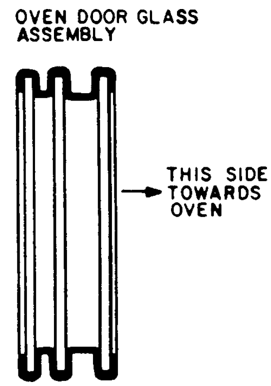




Figure 89

**OVEN DOOR GLASS - PORCELAIN DOOR**
**Model RST354**

1. Remove oven door from range and place it on a protected surface.
2. Remove six (6) screws securing door backer to outer door panel and remove panel.
3. Remove screws securing glass retaining clips to outer panel and remove glass.
4. Reverse procedure to reinstall.

**STORAGE DRAWER PANEL, STORAGE CDRAWER BACKER, STORAGE DRAWER, STORAGE DRAWER TRACKS (RSS MODELS)**

1. Pull storage drawer all the way out - lift up on runner (gray - left, black - right) arms inside then pull storage drawer all the way out and off or range.
2. Tracks are fastended to side frame with a screw.
3. Runners are fastened to storage drawer by two (2) pop rivets on each side.
4. Storage drawer panel and storage drawer backer are secured to storage drawer using screws.

**STORAGE DRAWER PANEL (RST MODELS)**

1. Remove storage drawer from range.
2. Remove six (6) screws securing outer panel to drawer panel liner.
3. To replace the panel, remove four (4) screws securing drawer handle to panel.

**STORAGE DRAWER HANDLE (RST MODELS)**

1. To remove the handle, using the Storage Drawer Panel Removal Procedure.

# DISASSEMBLY PROCEDURES - RST MODELS

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### STORAGE DRAWER PANEL LINER (RST MODELS)
1. Remove storage drawer from range.
2. Remove six (6) screws securing drawer panel to liner.
3. Remove seven (7) screws securing liner to drawer assembly.
4. Reverse procedure to reinstall.

### DRAWER ASSEMBLY (RST MODELS)
1. Remove storage drawer from range.
2. Remove seven (7) screws securing drawer liner to drawer assembly.
3. To replace the drawer assembly, remove the rivets (two (2) each side) securing drawer runners to drawer assembly.

### DRAWER RUNNER (RST MODELS)
1. Remove storage drawer from range.
2. Remove two (2) rivets securing drawer runner to drawer assembly. **NOTE:** The drawer runner "CATCH" and the drawer track "TAB" are color coded. Be sure to match a black drawer runner "CATCH" to a black drawer track "TAB" and gray drawer runner "CATCH" to a gray drawer track "TAB".

### SIDE PANEL TRIM
1. Shut off power to the range.
2. Remove oven door and storage drawer.
3. Remove grates, burner bowls, and main top.
4. Remove control panel.
5. Carefully pry trim off of side panel. Reverse procedure to reinstall.

### DILUTION FLUE
1. Shut off power to the range. Shut off main gas supply and disconnect supply line from range. Slide range away from wall.
2. Remove rear cover and main top.
3. Remove four (4) screws securing backguard to supports. Protect surface of burner box and carefully lay backguard on burner box.
4. Remove two (2) screws securing dilution flue to insulation retainer. Lift up and tilt flue forward to remove. Check gas connections for leaks with soap solution.

### INNER FLUE
1. Follow Steps 1 - 4, Dilution Flue Removal.
2. Remove screws securing inner flue to combustion chamber.
3. Reverse procedure to reinstall. Check gas connection for leaks with soap solution.

### BROIL BURNER CHAMBER
1. Shut off power to the range. Shut off main gas supply to range and disconnect main gas line to range. Slide range away from wall.
2. Follow Steps 2 - 4, Dilution Flue Removal.
3. Remove screws securing inner flue to broil burner chamber.
4. Remove oven door.
5. Remove broil ignitor and broil burner.
6. Remove four (4) screws in back oven wall and ten (10) screws securing combustion chamber to oven liner.
7. Remove screws securing cup duct (broil burner feed tube and orifice) to combustion chamber.
8. Slide chamber and chamber channels out of range. When reassembling, be sure oven back gasket and channels are in place. Check main gas connection for leaks with leak detector or soapy water.

### LOW BACK RAIL, BACK RAIL END CAPS, FLUE COVER TRIM, DILUTION FLUE COVER
**Models RST307, RST308, RST309**
1. Shut off power to the range. Shut off main gas supply and disconnect supply line from range. Pull range away from wall.
2. Remove screws securing end caps to support brackets.
3. Remove two (2) screws securing each end cap to low back rail.
4. Remove two (2) screws securing flue cover trim to flue cover.
5. Remove rivets securing flue cover to back rail.
6. Reverse procedure to reinstall. Check main gas connection for leaks with leak detector or soapy solution.

# UPPER OVEN - RST Models

> **WARNING** FIRE OR EXPLOSION
>
> **TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

## OPERATING AND TROUBLESHOOTING PROCEDURES

### Upper Oven Controls

The upper oven controls consist of a thermostat, electric gas valve, and a 120 VAC electric ignitor to provide ignition for the gas at the oven burner.

| | PROBLEMS | POSSIBLE CAUSE | CORRECTION |
|---|---|---|---|
| 1. | Oven Burner will not turn on. | No 120 VAC to range. | Check electric at wall outlet. |
| | | Inoperative ignitor. | Check ignitor according to instru |
| | | Inoperative gas valve. | Check gas valve according to in valve. |
| | | Inoperative thermostat. | Check thermostat according to i thermostat.. |
| | | Faulty wiring. | Check wiring against appropriat sure all terminals and connectio |
| 2. | Gas valve opens but burner does not ignite. | Bake ignitor positioned to far from burner. | Reposition bake ignitor closer to |
| | | | Adjust universal orifice accordin installation instructions. |

### Electric Ignitor Test

The operating of the Oven "ELECTRIC IGNITOR" can be checked by using a Volt/Ohmmeter as follows: **NOTE:** This check must be made while the ignitor is at ambient room temperature. It is a continuity check of the ignitor.

1. Disconnect electricity. (Disconnect plug or power cord.)
2. Set the volt/ohmmeter on the RX1K ohms scale. (Zero the meter.)
3. Attach one (1) lead of the volt/ohmmeter to any white wire.
4. Remove the electric ignitor wire terminal from the ELECTRIC GAS VALVE. (Refer to the appropriate wiring diagram to determine the correct ignitor wire terminal.)
5. Attach the remaining meter lead to the ignitor wire terminal removed from the ELECTRIC GAS VALVE.
6. If the meter indicated "0" OHMS the ignitor is operative.
7. Reconnect wire terminals according to the appropriate wiring diagram.

**WARNING** **FIRE OR EXPLOSION**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

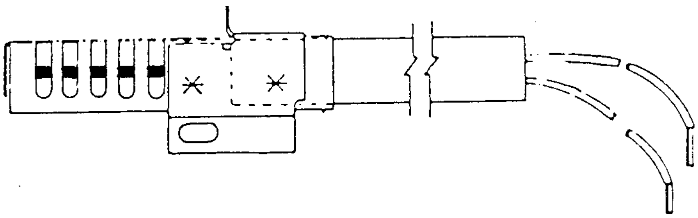


Figure 90

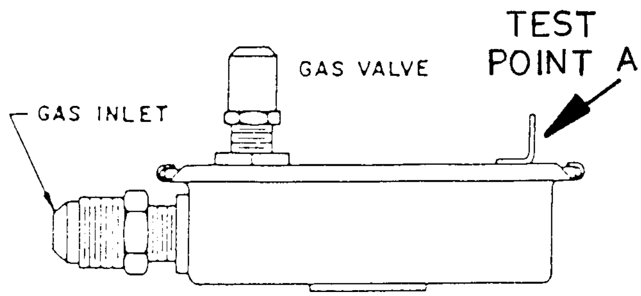



Figure 91

**Electric Gas Valve**

The operation of the Electric Gas Valve Assembly can be checked with the use of an incandescent test lamp (105 - 120 V., 7 watt bulb). An optional test procedure for the Electric Gas Valve Assembly using a Volt/Ohmmeter is also explained.

**Test Procedure Using a Test Lamp:**

1. Disconnect electricity. (Disconnect plug or power cord.)
2. Attach one (1) lead of test lamp to any white wire (except for white wire on gas valve).
3. Attach the remaining lead of the test lamp to the "RED" wire on the gas valve (point A).
4. Set the oven heat control to 350°.
5. Reconnect electricity.
6. No light at "RED" wire = electrical circuit interrupted before gas valve. Light at these terminals, proceed to Step 7.
7. Disconnect electricity. Attach lead of test lamp to the "white" wire terminal on the gas valve (point A).
8. Reconnect electricity. Set the oven heat control at 350°.
9. No light at "WHITE" wire = electrical circuit interrupted in gas valve. Light at "WHITE" wire indicated an operative gas valve.

**Optional Test with Volt/Ohmmeter**

1. Disconnect electricity. (Disconnect plug or power cord.)
2. Remove the two (2) wire terminals from the gas valve (point A).
3. Set volt/ohmmeter on the X1 ohms scale. (Zero the meter.)
4. Attach a meter lead to each of the terminal studs of the valve.
5. If the meter does not show an "open" circuit, the gas valve is operative.
6. Reattach the two (2) wire terminals removed from the gas valve (point A).

**Clock Timer**

The automatic electronic timer is located in the upper oven control panel (see illustration) and controls bake-broil-self-clean functions for lower oven. Upper oven is manually operated by the thermostat knob. Instructions for operating and testing the clock timer are on Pages 56 - 59. Refer to RST399 wiring diagram for wiring connections.

# UPPER OVEN - RST Models

**WARNING** **FIRE OR EXPLOSION**

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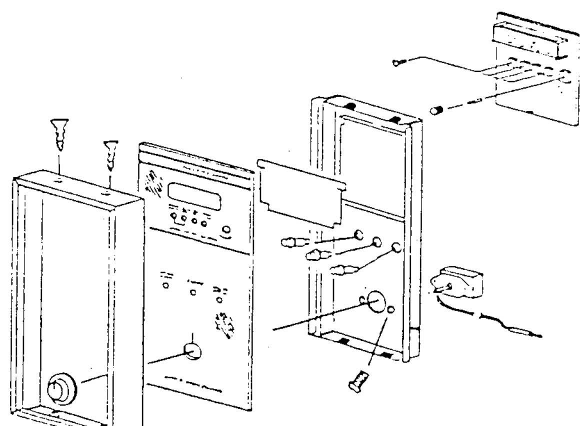


Figure 92

**Upper Oven Thermostat**

The upper oven thermostat is in series with the upper oven gas valve, upper oven neon, and upper oven ignitor. When upper oven is turned from OFF to any temperature selection contacts 1 and 2 on thermostat close. The oven burner is turned on as the oven temperature increases.

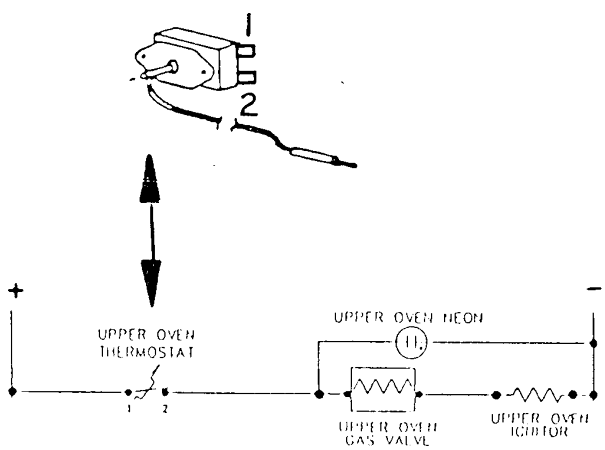



Figure 93

The contacts 1 to L open and close to maintain selected oven temperature.

**Test Procedure:**

1. Disconnect electricity.
2. Remove upper oven control panel assembly.
3. With upper oven thermostat:
   **OFF:** No continuity Contacts 1 to 2
   **ON:** Continuity Contacts 1 to 2

Calibration is by adjusting thermostat dial as per Page 91 or by calibration screw in center of thermostat shaft.

**Oven Light**

All models designated to have a light in the upper oven will be equipped with a special high temperature oven light bulb which is turned on by an oven light switch located on the air intake panel.

**If the oven light will not turn on:**

1. Check the oven light bulb and replace if necessary.
2. Check the oven light switch for continuity. If none, replace the oven light switch.
3. Check all wiring to be sure all leads are correct and terminals are tight.

**Fluorescent Light System**

The fluorescent light system uses a starter and a ballast which are used in conjunction with the fluorescent lamp. To test the fluorescent lamp, push in on the switch. The lamp should light and remain on. If it does not light and remain lit, check the wiring using the diagram in the appropriate portion of this service manual. Replace by process of elimination to locate any faulty parts.

**REPLACEMENT OF PARTS**

**Electric Ignitor: DO NOT DROP**

1. Disconnect electricity at main disconnect plug or power cord.
2. Remove the upper oven control panel, upper oven bottom, and upper oven racks.
3. Remove the screw securing the ignitor mounting bracket to the upper oven burner.
4. Disconnect the one "RED" ignitor wire from the electric gas valve.
5. Disconnect the one "WHITE" ignitor wire from the white wire junction block.
6. Pull the ignitor assembly into the upper oven.
7. Reverse procedure to reinstall the ignitor assembly.

# UPPER OVEN - RST Models

**WARNING** **FIRE OR EXPLOSION**

**TO AVOID THE RISK OF ELECTRICAL SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING, UNLESS TESTING REQUIRES IT.**

**Upper Oven Electric Gas Valve**

1. Disconnect electricity at main disconnect plug or power cord.
2. Remove the upper oven control panel, upper oven bottom, and upper oven racks.
3. Remove splash plate.
4. Turn off gas at SHUT OFF VALVE behind splash plate **OR** turn off gas at supply line to range.
5. Disconnect the "RED" and "WHITE" wires from the electric gas valve.
6. Disconnect the inlet tubing at the top of the shut off valve behind the backsplash.
7. Disconnect outlet tubing at the orifice fitting connection.
8. Remove the two (2) 5/16" nuts from the bolts which secure the electric gas valve to the rear panel of the upper oven.
9. Remove the electric gas valve assembly with both tubings attached. Transfer the tubing to the new gas valve. Double wrench the fittings to avoid damage.
10. Reverse procedure to reinstall the electric gas valve.
11. Check all gas connections with soap for gas leak.

**Upper Oven Thermostat**

1. Disconnect electricity at main disconnect plug or power cord.
2. Remove the upper oven control panel. Remove control panel frame, clock knobs, thermostat knob, and control panel glass.
3. Disconnect all wires from the thermostat contacts. Remove the two (2) screws securing the thermostat to the thermostat mounting plate.
4. Remove the oven thermostat capillary bulb from the mounting clips in the top of the oven.
5. Reverse procedure to reinstall the upper oven thermostat. Be certain the capillary mounting clips are positioned properly. Refer to the wiring diagram for correct wire termination.

**Upper Oven Clock Timer, Indicator Lights, Control Panel Glass**

1. Disconnect electricity at main disconnect plug or power cord.
2. Remove screws securing control panel frame to control panel.
3. Remove clock knobs, and oven thermostat knob.
4. Remove control panel glass.
5. Remove screws securing control panel to range frame.
6. Depress tabs and push indicator lights through control panel. Disconnect wires from indicator light.
7. Remove screws securing clock timer assembly to control panel. Transfer wires, one (1) for one (1) - point to point, to new clock timer.

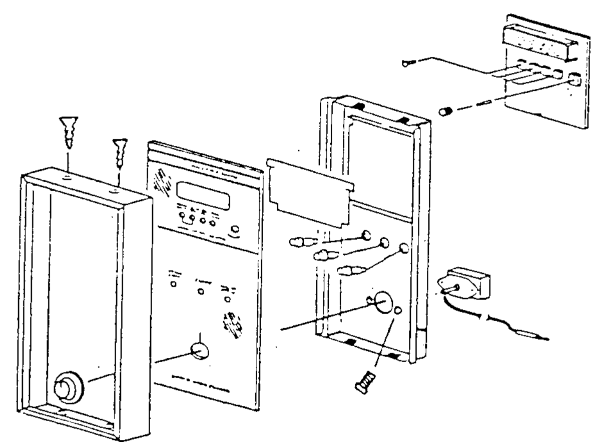


Figure 94

# UPPER OVEN - RST Models

**Upper Oven Door Assemblies Removal**

Remove the three (3) screws holding the top hinge to the chassis.

**⚠ CAUTION**

**EXTREME CARE SHOULD BE TAKEN TO BE SURE THE DOOR DOES NOT DROP AND BREAK.**

**NOTE:** The unit **MUST** be clear of overhead cabinets to remove screw.

**DISASSEMBLY** - Pull gasket from slot in door.

When replacing gasket, be sure it is installed properly and that it seals the door to the chassis when closed.

When replacing the glass, spread the side frame pieces apart slightly. Carefully slide the glass into the frame being sure the gasket stays in place and does not double over on itself. Carefully place top frame piece in place. Be sure the gasket is in place properly and does not fold over when replacing the frame.

**HANDLE REMOVAL** - Remove the two (2) screws holding the handle to the bottom of the door.

**DOOR STRIKE REMOVAL** - Remove the control panel. Cut or push away insulation. Use a wrench to remove strike.

**DOOR CATCH REMOVAL** - Open oven door. Grasp top

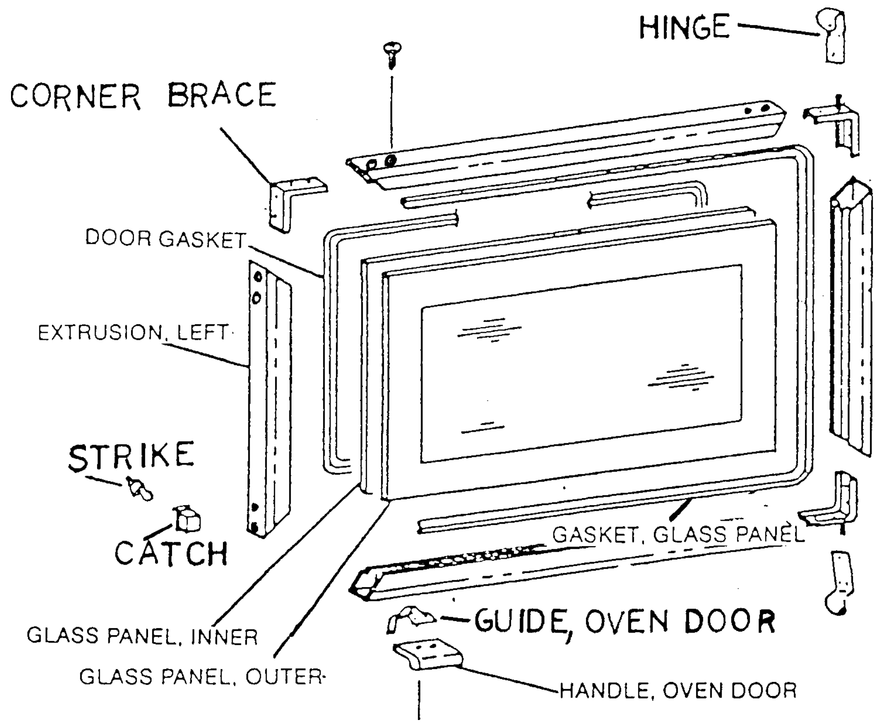



Figure 95

**IMPORTANT:** It is not necessary to remove the door gasket (black) when replacing the door glass. However, caution must be taken to be sure the gasket does not stretch or get torn when the frame is removed or replaced.

**GLASS REMOVAL** - Remove door and lay face up on a pad. Remove the two (2) screws on each side of the door at the top. Carefully slide the top frame piece out of the door assembly. The glass can now be lifted out of the door frame.

**⚠ CAUTION**

**BE SURE THE GASKETS IN THE FRAME DO NOT COME OUT WITH THE GLASS. IF A PIECE OF GASKET DOES COME OUT, REPLACE IT IN THE FRAME BEFORE REPLACING GLASS.**

and bottom edges of catch with a pliers, squeeze together and pull catch out of door.

**OVEN DOOR HINGE REMOVAL** - Top Hinge - Open oven door to gain access to screws on right side of chassis. Hold door and remove the three (3) screws (black) holding hinge to chassis.

**DO NOT ALLOW DOOR TO FALL AND BREAK. LIFT DOOR AND HINGE STRAIGHT UP.**

**BOTTOM HINGE -** Remove top hinge and door. Remove three (3) screws (black) holding bottom hinge to oven chassis.

**NOTE:** Door must be leveled when reinstalled. See "Door Alignment".

# UPPER OVEN - RST Models

**Oven Door Alignment**

Loosen (do not remove) the three (3) screws holding the top hinge to the chassis. Move the hinge to the right to raise the left side of the door, or to the left to lower the left side of the door.

**Splash Plate Trim/Splash Plate Glass**

Remove the three (3) screws securing splash plate trim to underside of upper oven. Support splashplate glass then remove trim and glass.

**Jacket End**

**Removal** - Remove the side brace trim. Remove the screw at the bottom front corner of the jacket end. Remove the upper oven door if the right jacket end is to be removed; or, the control panel if the left jacket end has to be removed. Drill out the three (3) pop rivets on the front flange of the jacket end and the five (5) pop rivets on the black flange of the jacket end. Lift the jacket end off the oven chassis.

**NOTE:** When installing the jacket end, the front flange must be pop riveted in place. However, #8 x 3/8" self-tapping screws can be used on the rear flange if desired.

**Decorative Panel**

**Removal** - Remove the five (5) screws along the bottom edge of the air intake panel below the upper oven. Remove the screw at each end of the front of the air intake panel. Pull the panel forward.

**Disassembly** - Disconnect the wires from the switches on the air intake panel from the range. Depress clips securing the switch assemblies to the air intake panel, remove switches from the air intake panel.

**Main End Panel**

1. Remove maintop to avoid possible damage. Remove filter filler strip and splash plate. Remove the side brace trim rail.
2. Remove screw holding trim rail at bottom front corner of range. Remove all screws holding backplate and end panel on the side being removed.
3. Remove the inside side brace (below upper oven) by moving the front edge of the side brace toward the center of the range and sliding forward at the same time.
4. Slide the trim rail forward and off the range.
5. Remove the end panel.
6. Reverse the procedure to install.

**Light Socket**

**Upper Oven** - Remove upper terminal block from range terminal block (behind splash plate). Remove control panel. Disconnect light socket wires from the wire nuts. Remove oven lamp. Press on both sides of the black clip holding the socket to the housing and push socket into oven compartment.

**Fluorescent Light System**

The fluorescent light system uses a starter and a ballast which are used in conjunction with the fluorescent lamp. To test the fluorescent lamp, push in on the switch. The lamp should light and should remain lit. If it does not light and remain lit, check the wiring using the diagram in the appropriate portion of this service manual. Replace by process of elimination to locate any faulty parts.

**Fluorescent Lamp**

Remove filter filler strip from range (at top of splash plate below upper oven). Lower splash plate. Lift lamp straight up out of lampholders. DO NOT TURN LAMP!

**Lampholder**

Remove filter filler strip and splash plate. Disconnect upper terminal block from range terminal block. Remove wires leading to the nearest wire nuts from the lampholders. Remove the two (2) screws holding each lampholder in place.

**Ballast**

Remove filter filler strip and splash plate. Disconnect upper terminal block from range terminal block. Remove wires of ballast from nearest wire nuts. Remove two (2) nuts mounting ballast.

**Light Switch and Fluorescent Light Switch**

Remove air intake grille (below upper oven door). Press Tinnerman spring on switch assembly against end of switch and remove switch from opening. Disconnect switch wires.

# UPPER OVEN - RST Models

**UPPER OVEN PARTS**

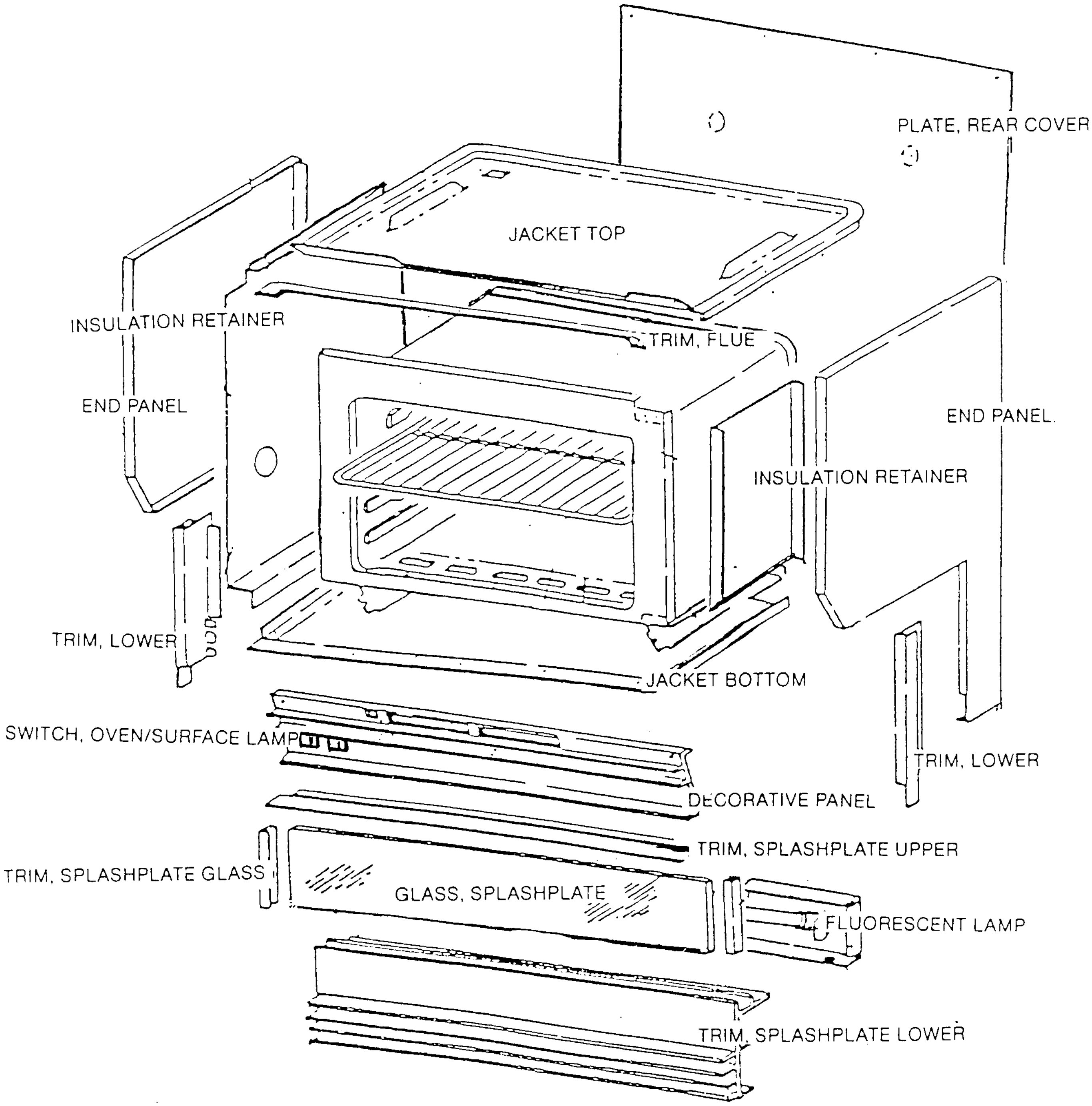
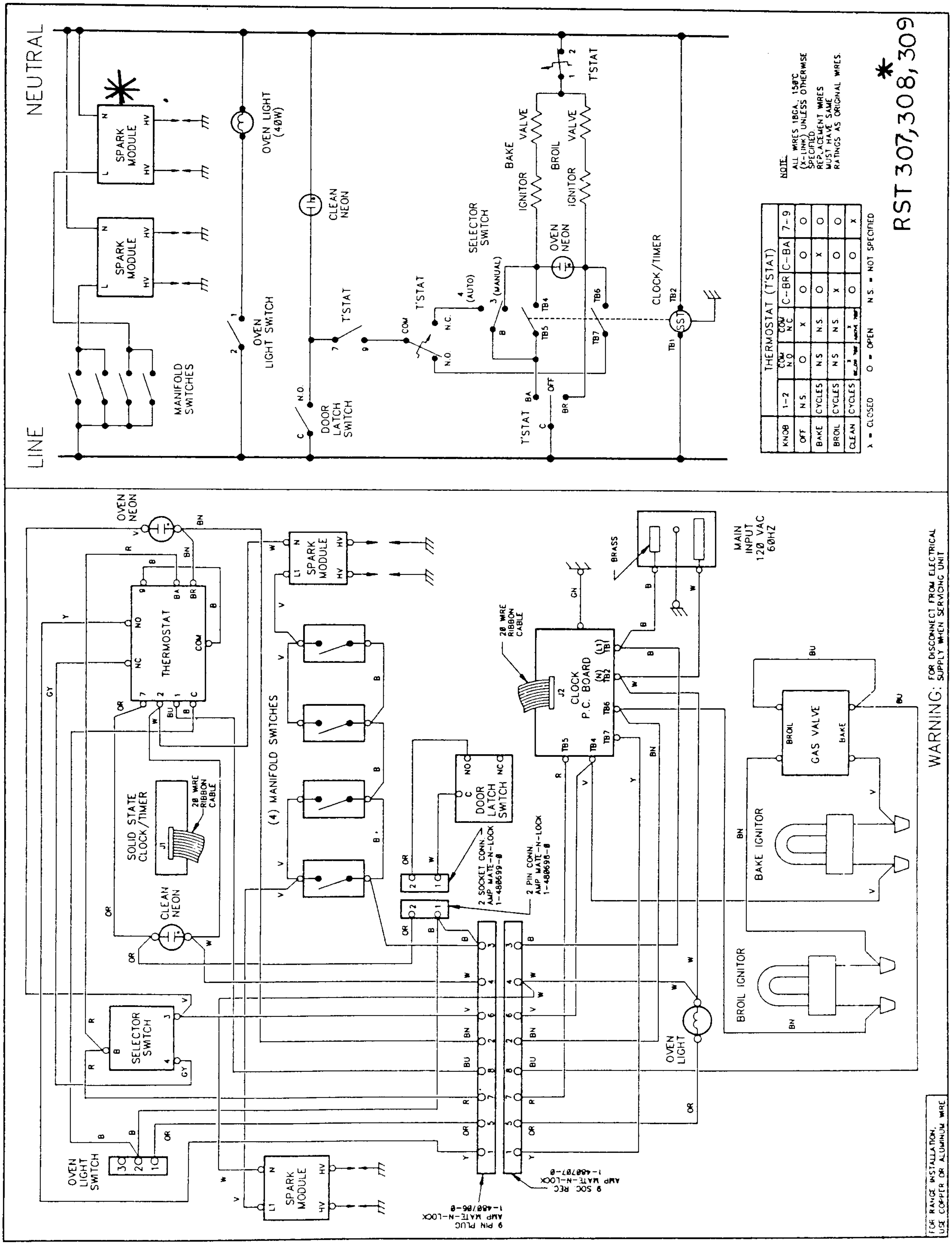



Figure 96

# WIRING DIAGRAMS AND SCHEMATICS

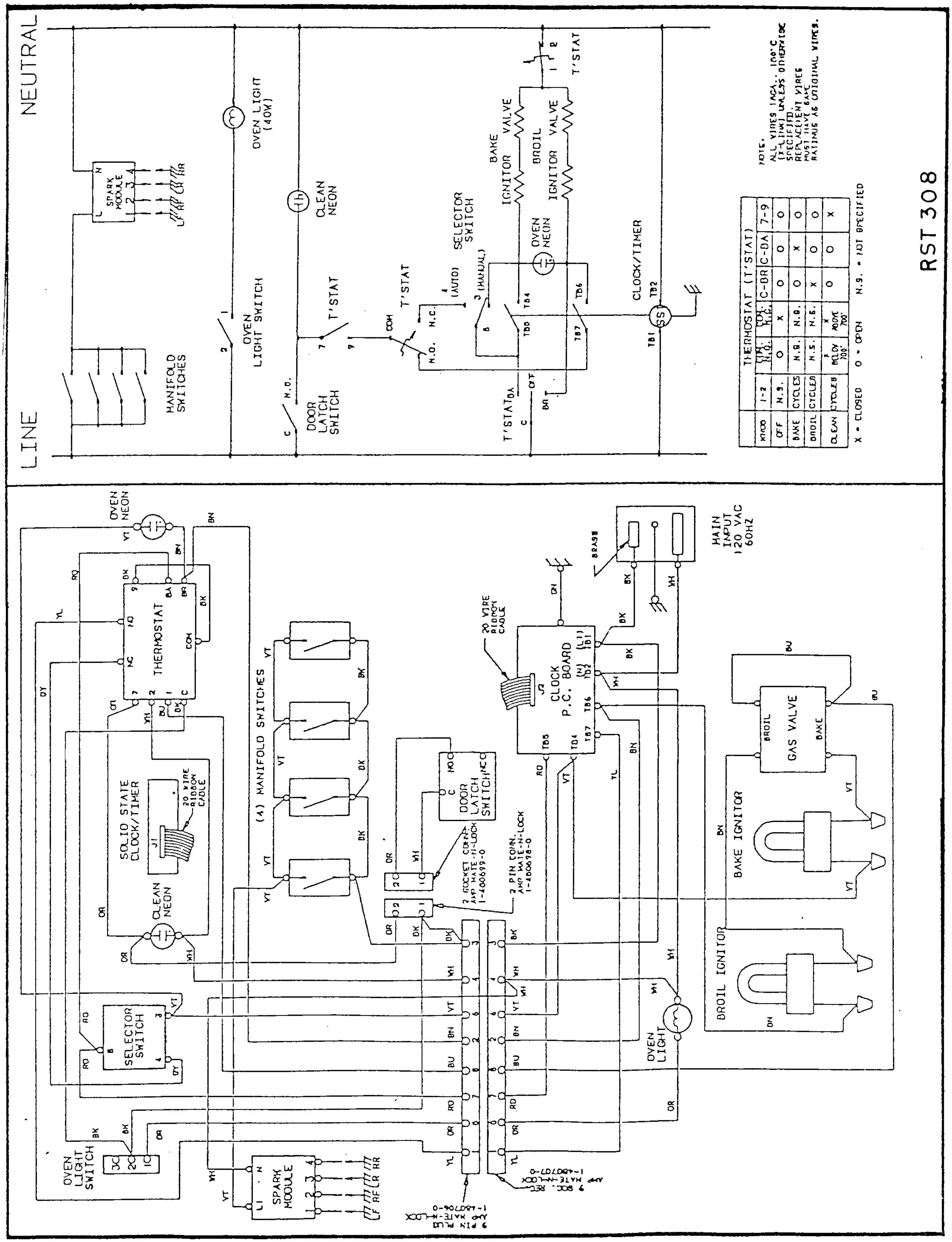
**WARNING**

**TO AVOID POSSIBLE ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING. FOLLOW SPECIFIC STEPS LISTED IN THIS MANUAL FOR TESTING OR REPLACEMENT OF A SUSPECTED FAILED COMPONENT.**



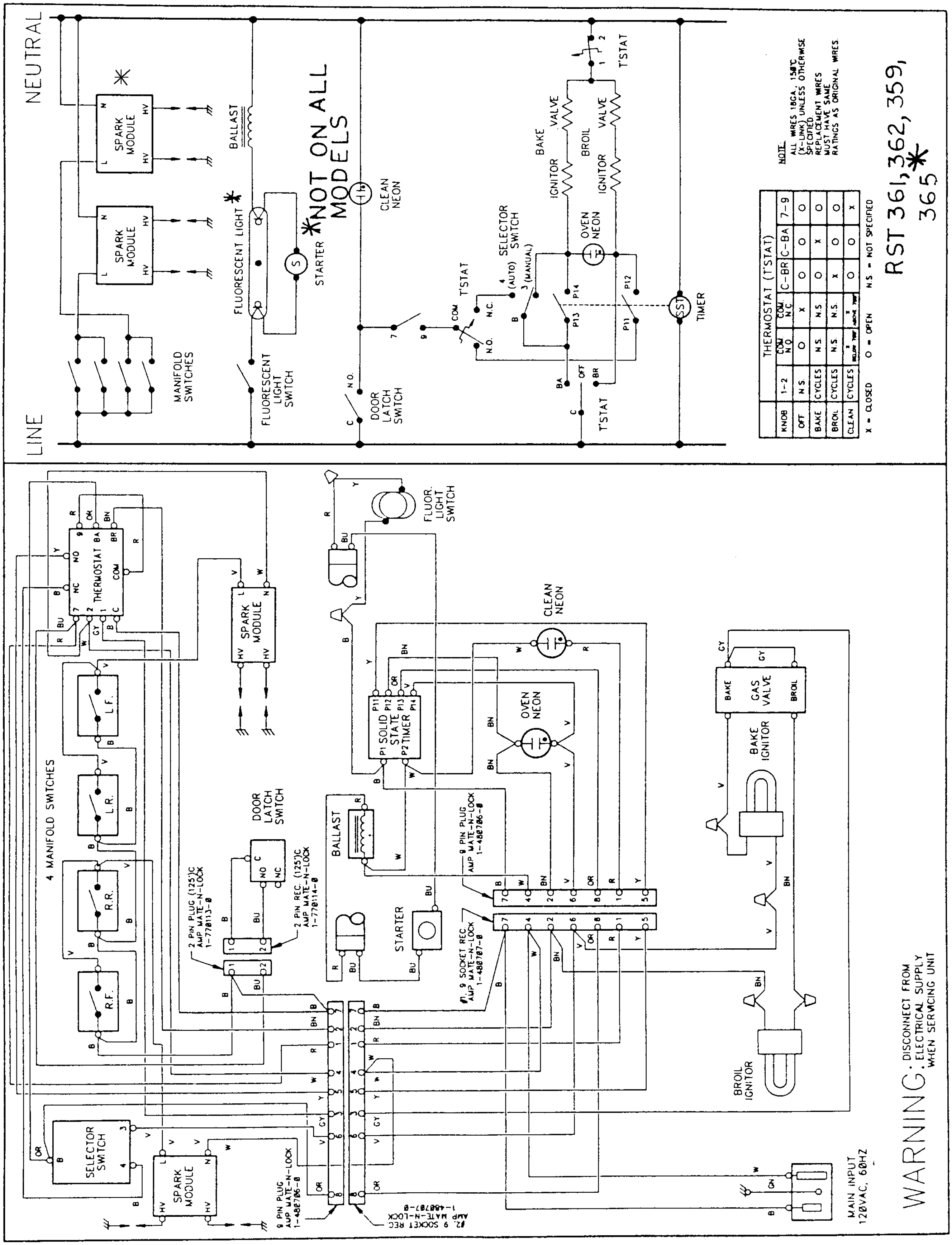

***RST308 ALTERNATE SPARK MODULE - SEE NEXT PAGE**

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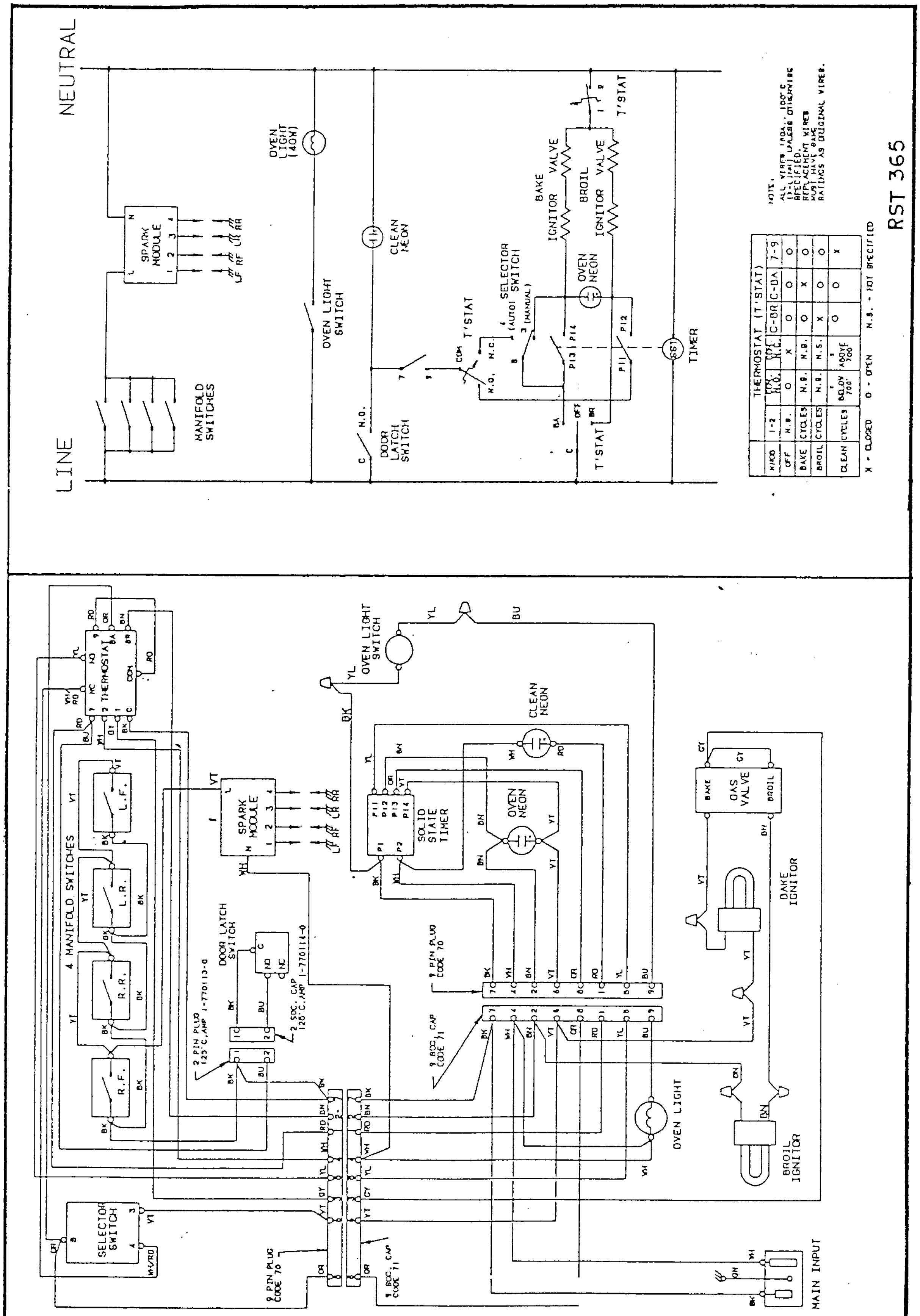
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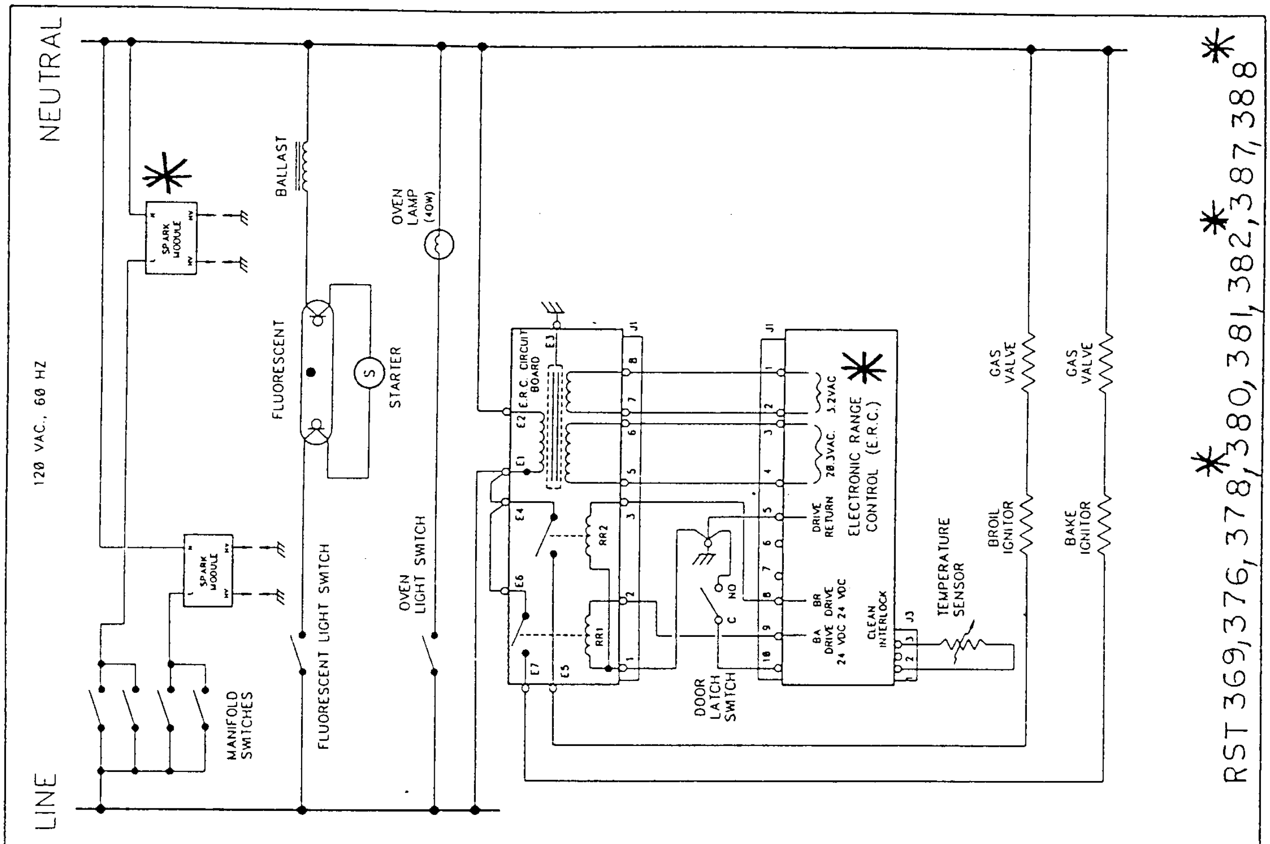

***RST365 ALTERNATE SPARK MODULE - SEE NEXT PAGE**

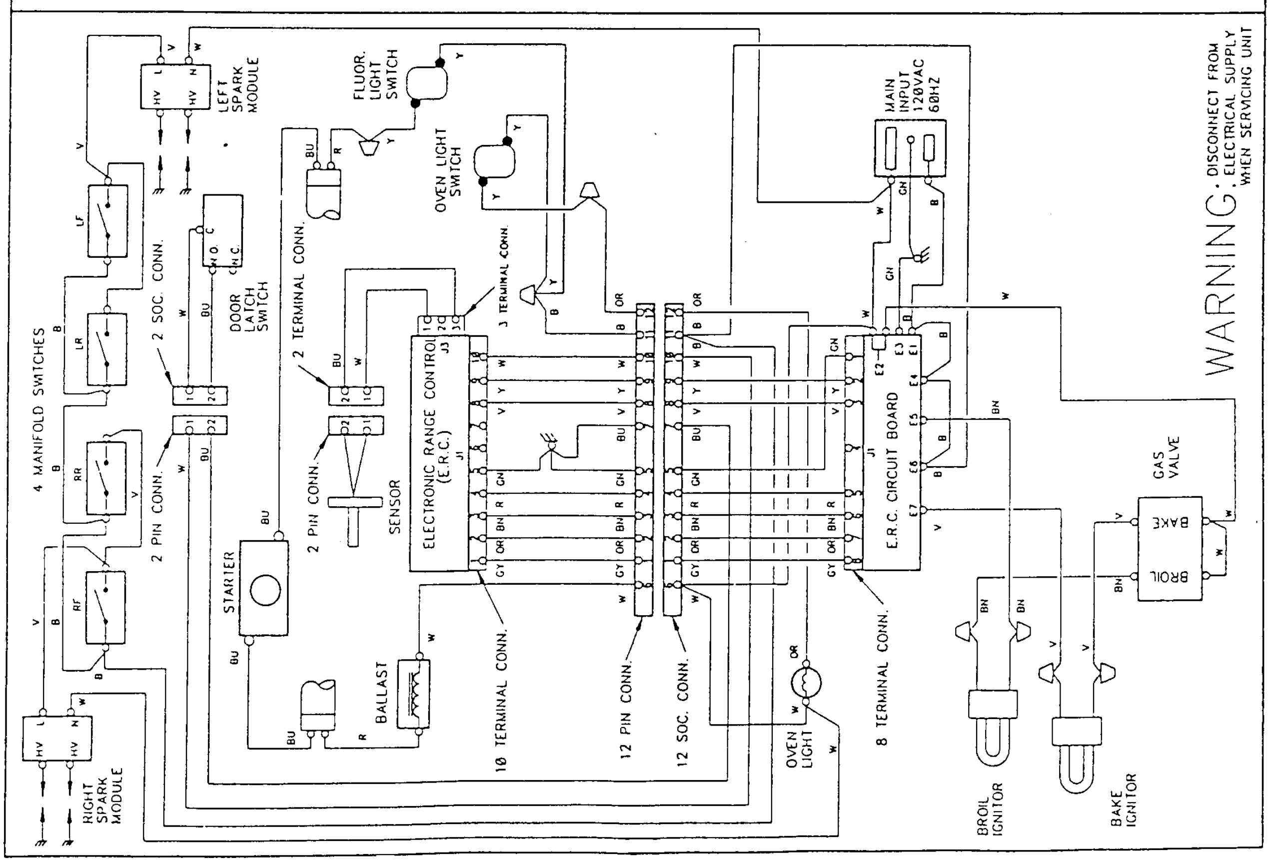
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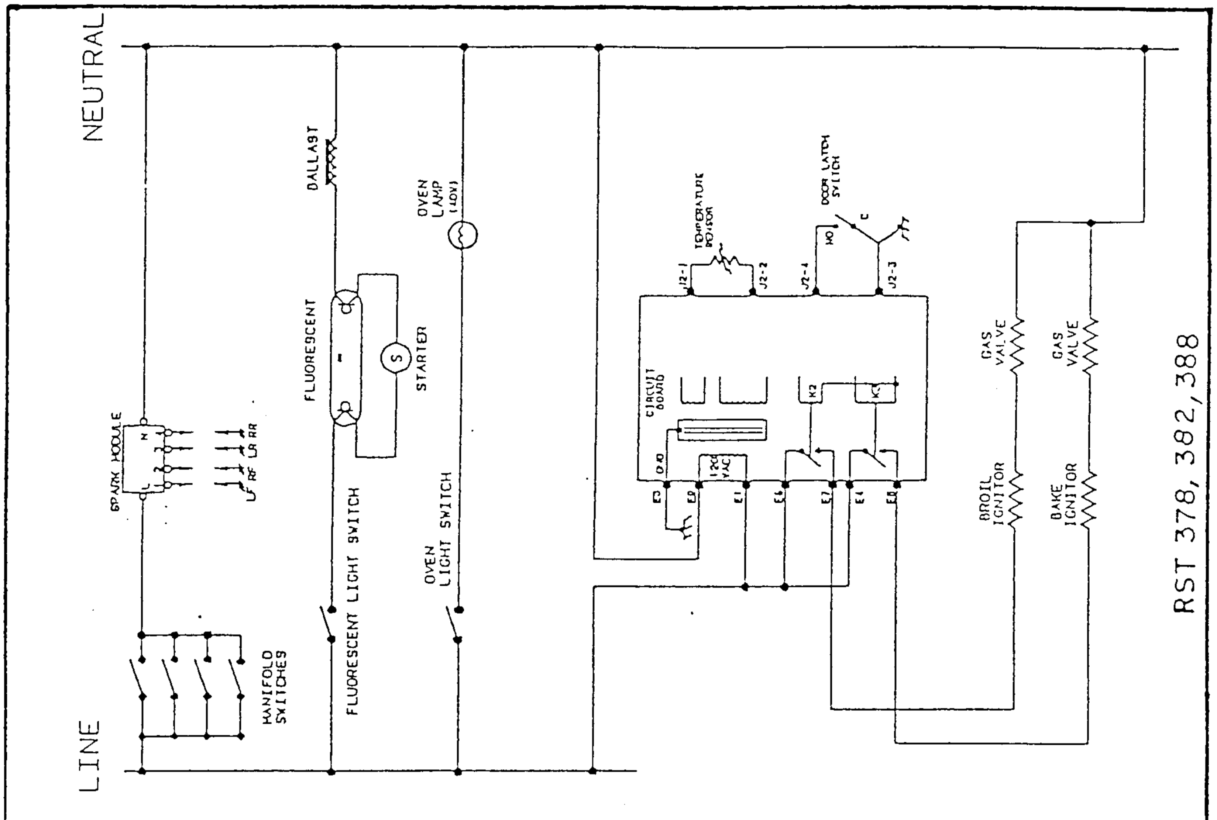


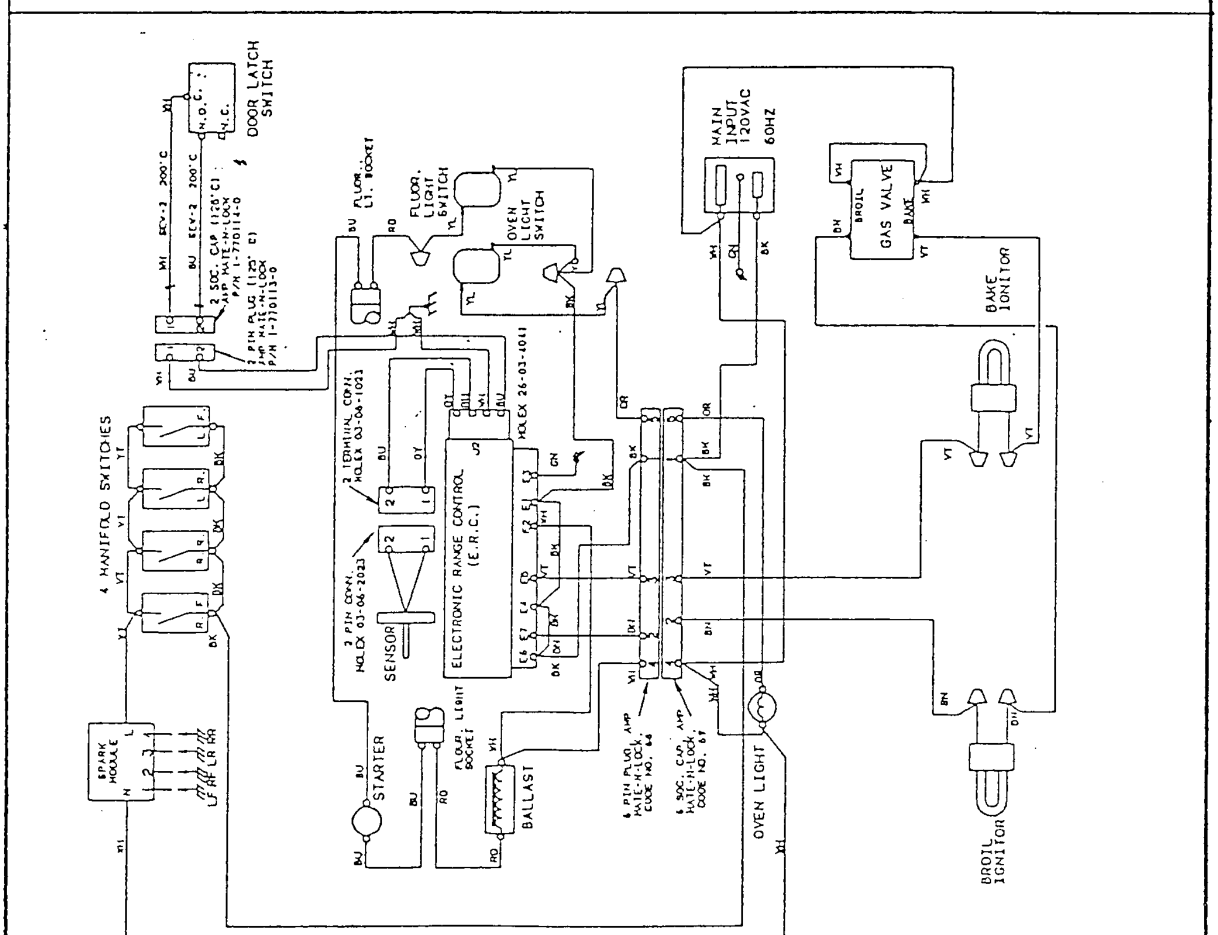




***RST378 ALTERNATE SPARK MODULE/ E.R.C. - SEE NEXT PAGE**

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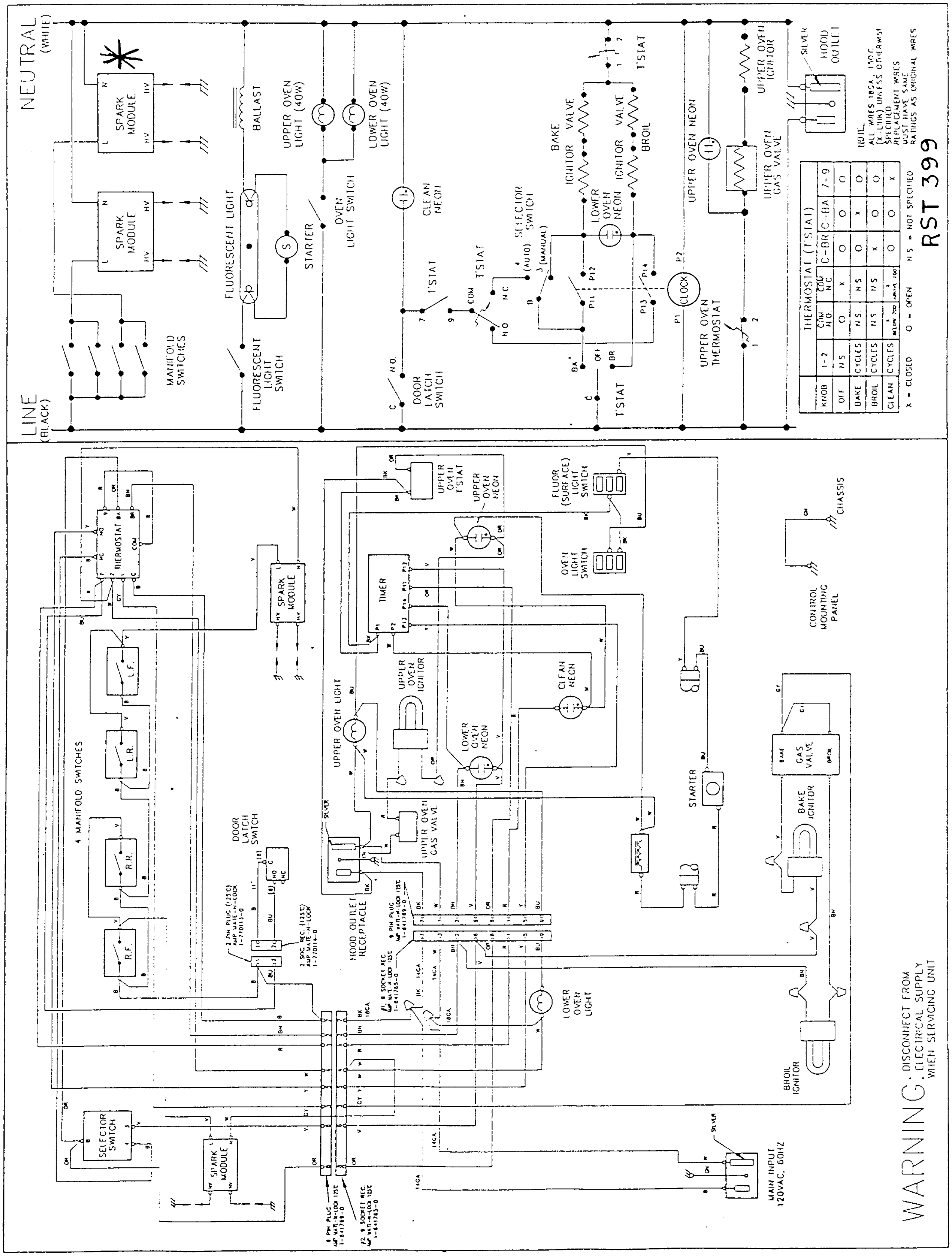
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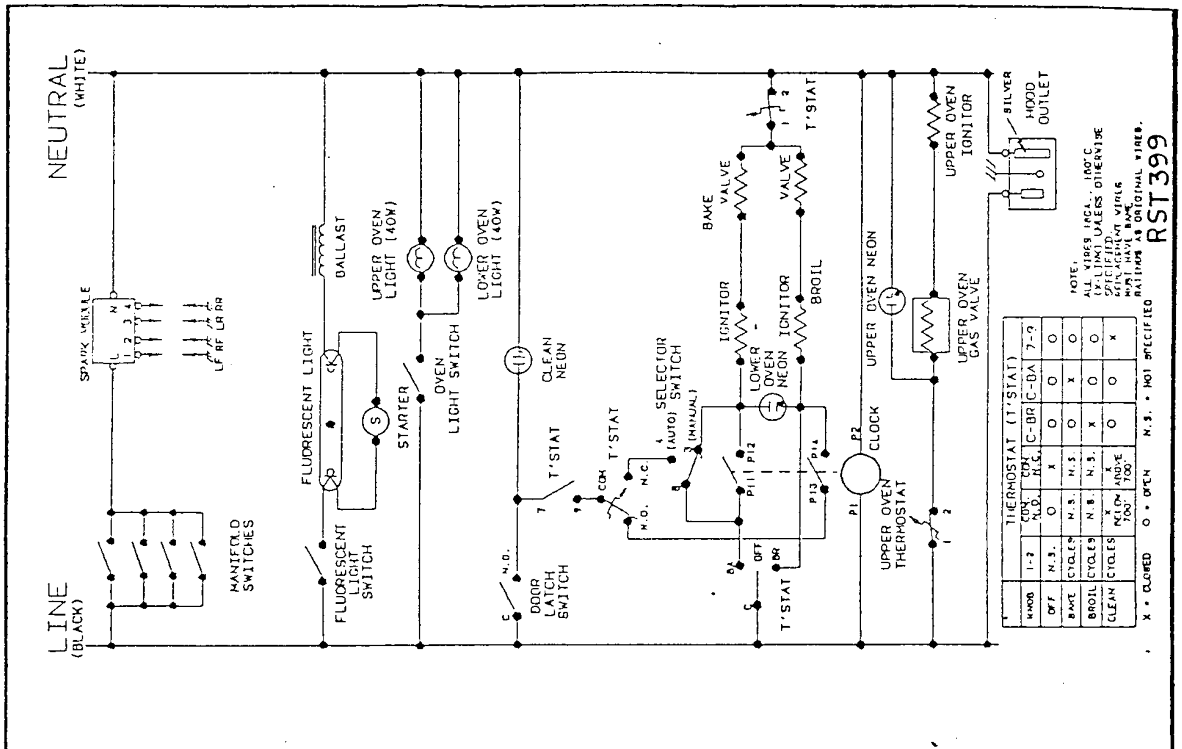
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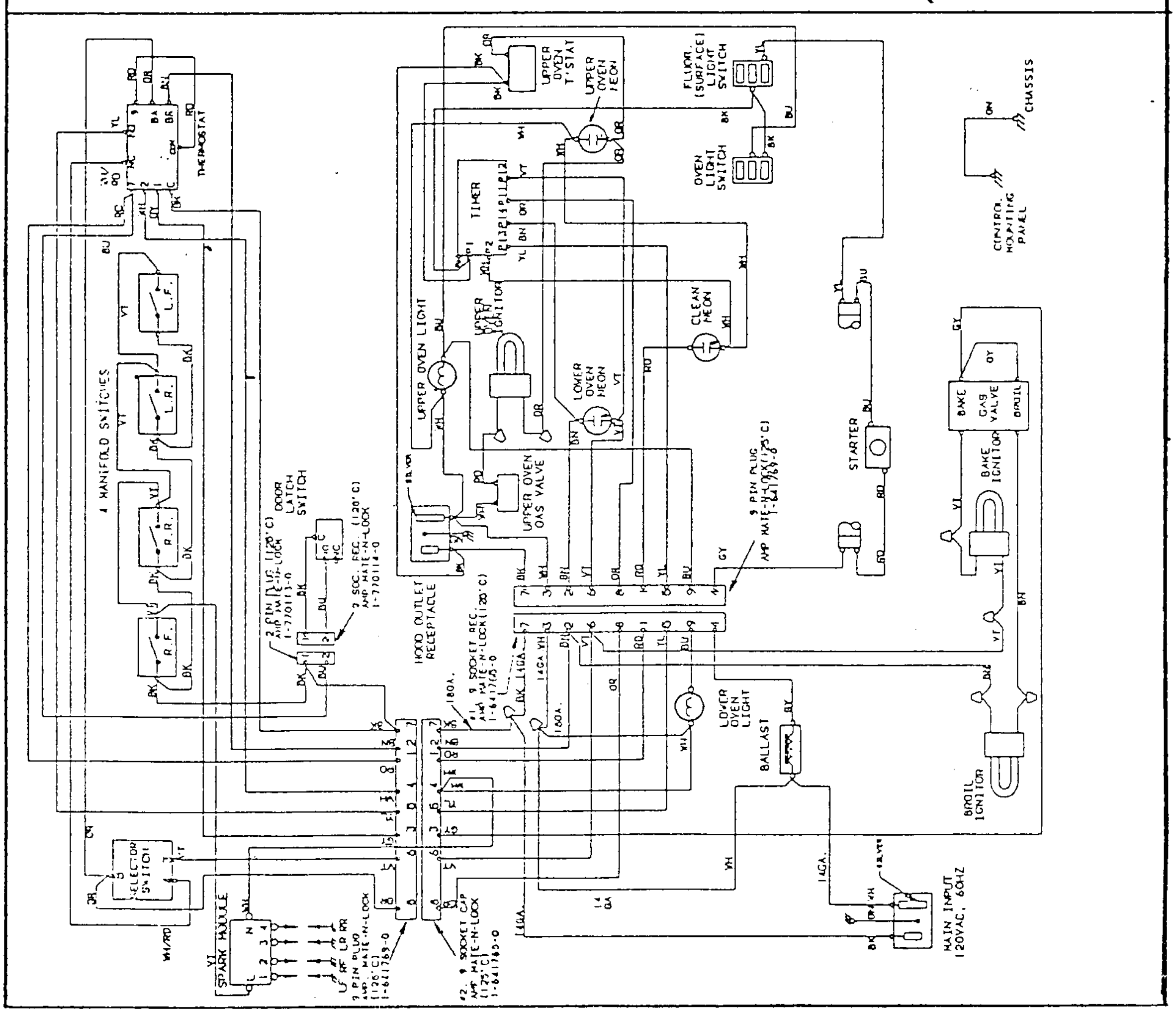



***ALTERNATE SPARK MODULE - SEE NEXT PAGE**

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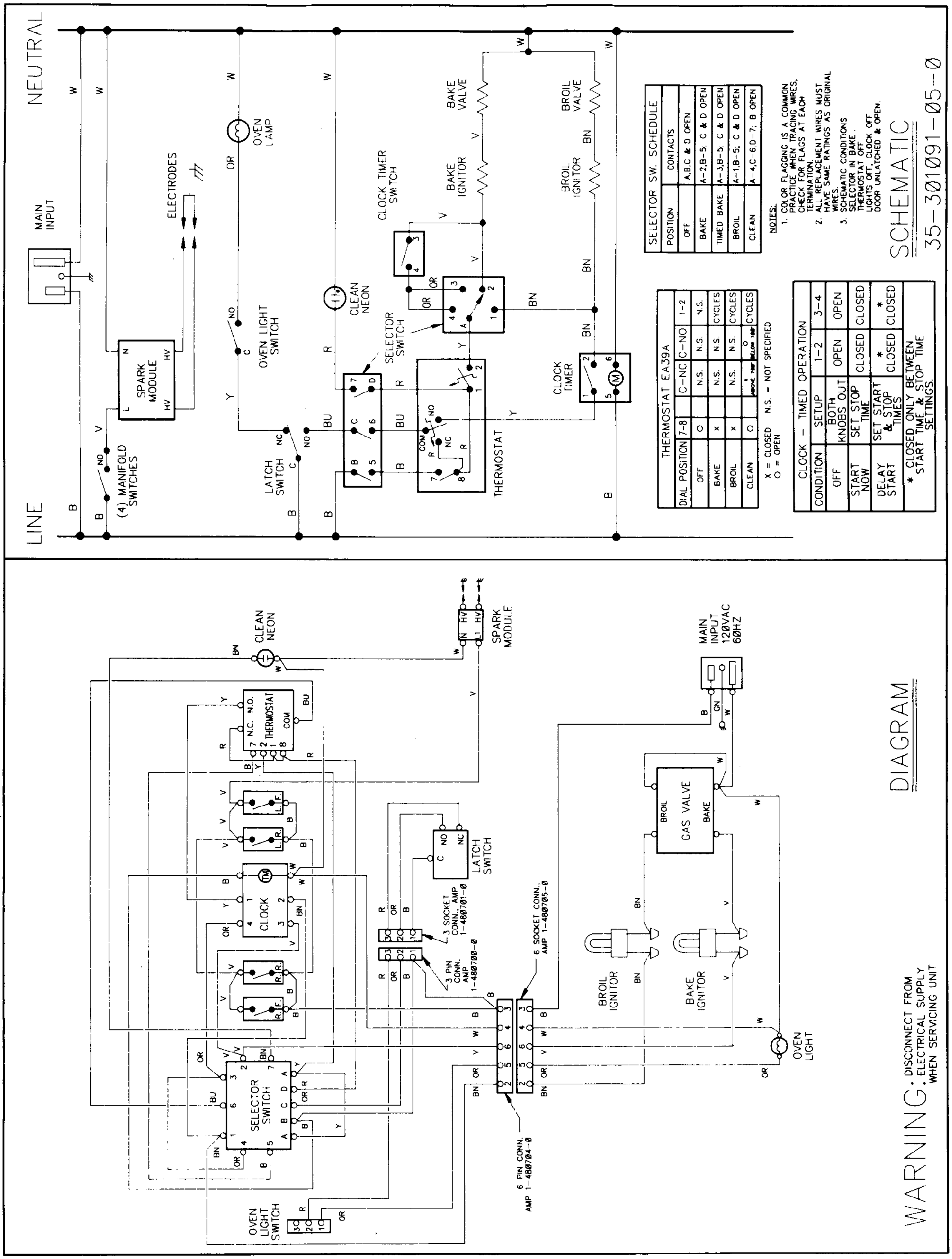
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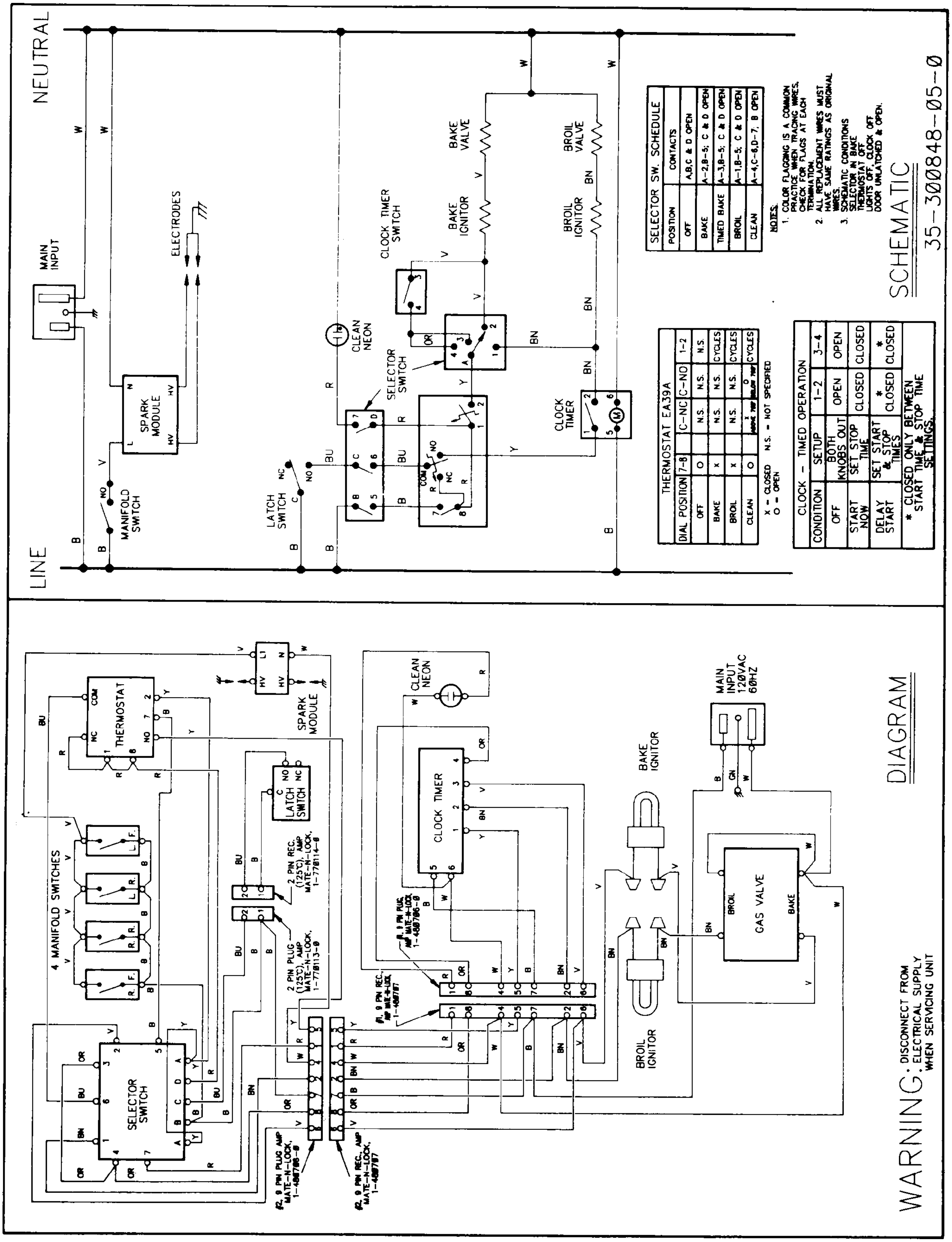
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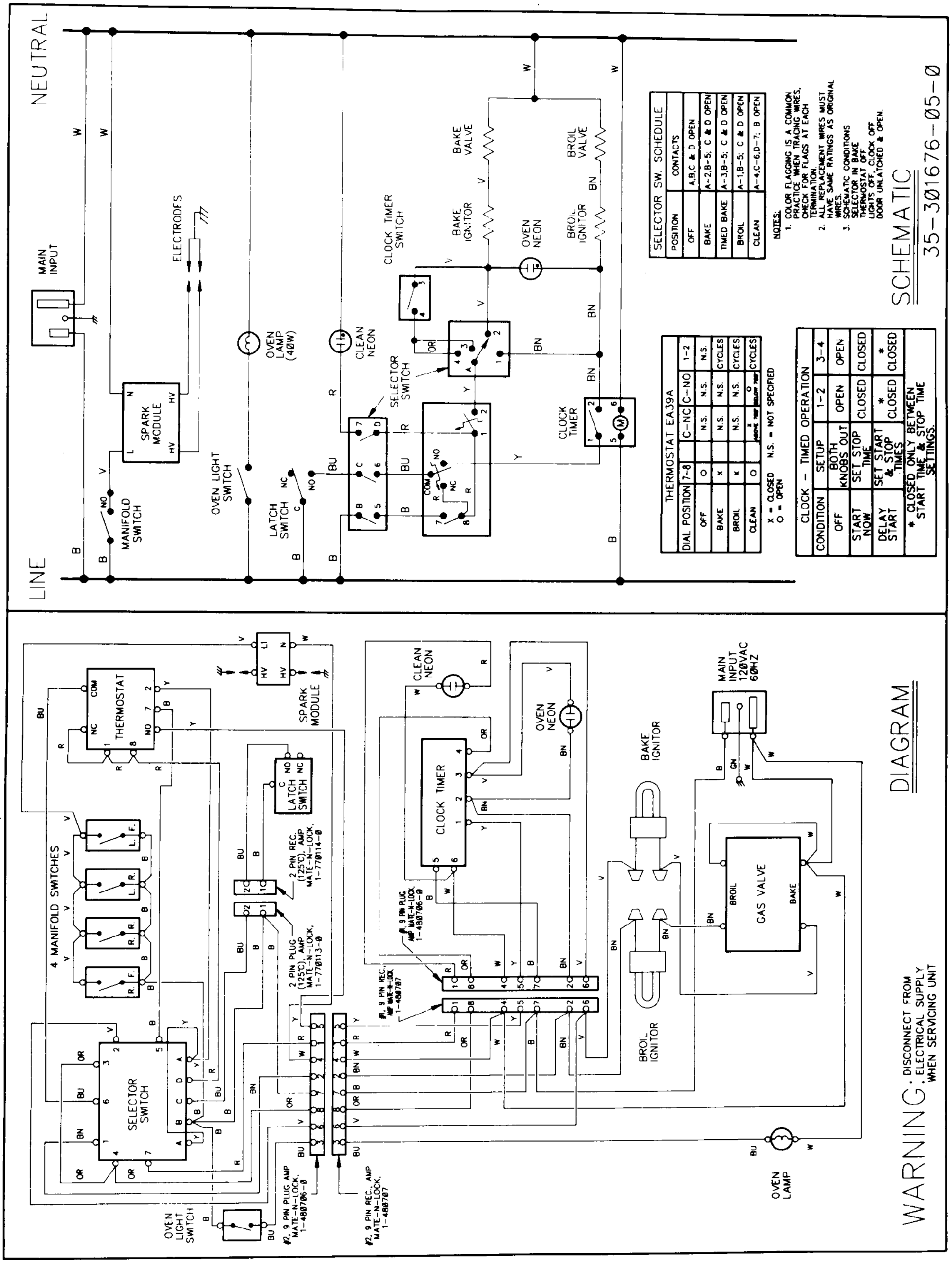
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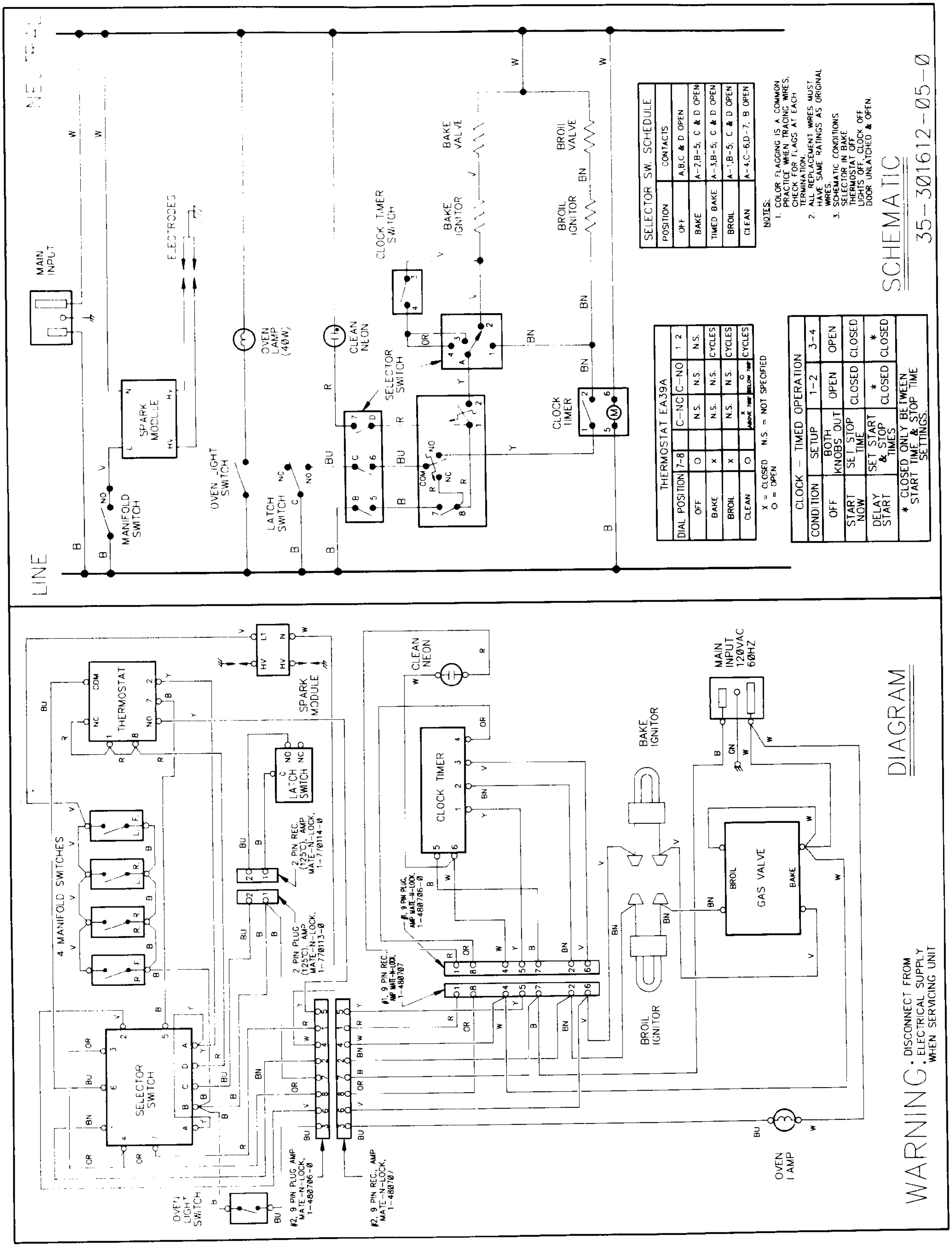
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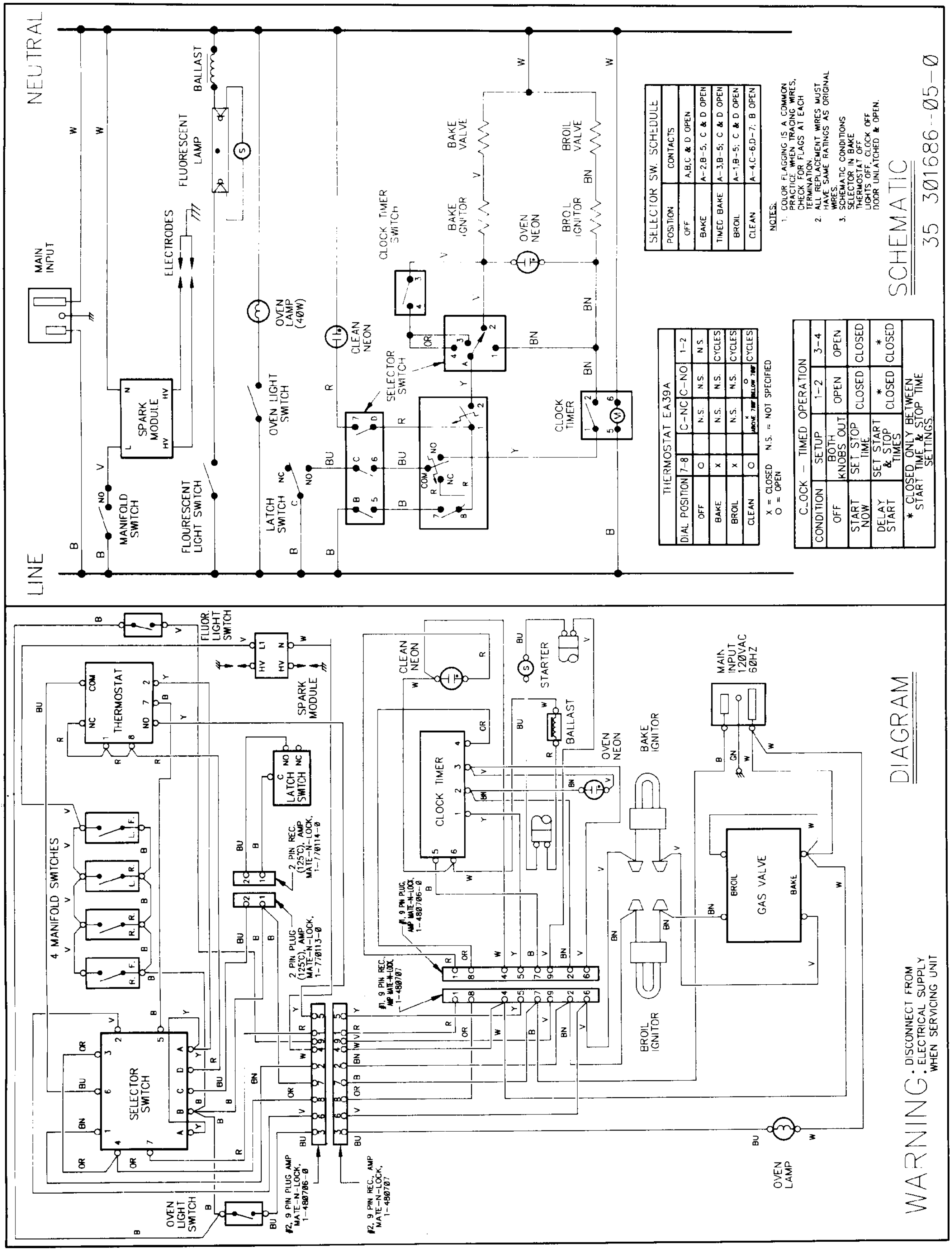
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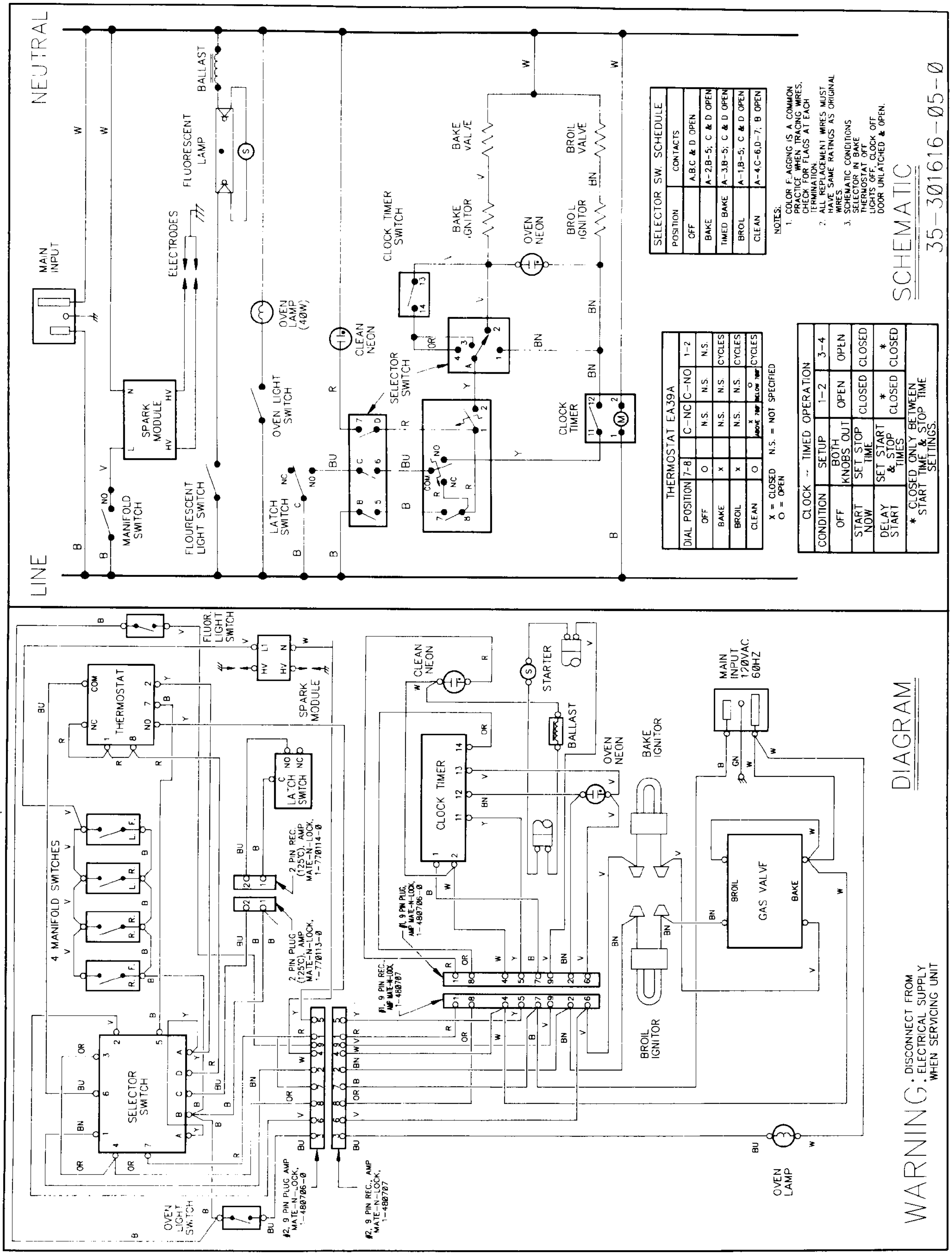
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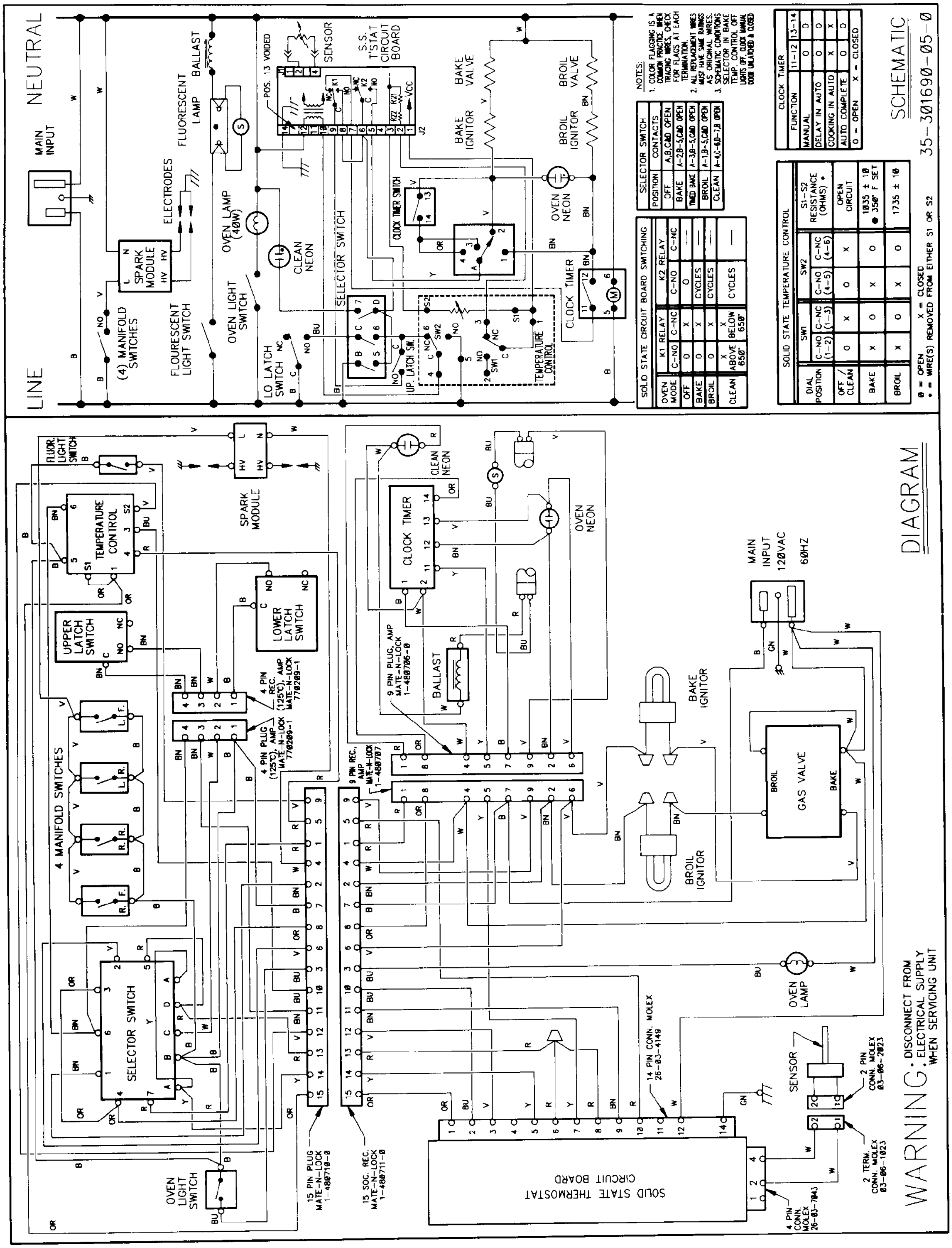
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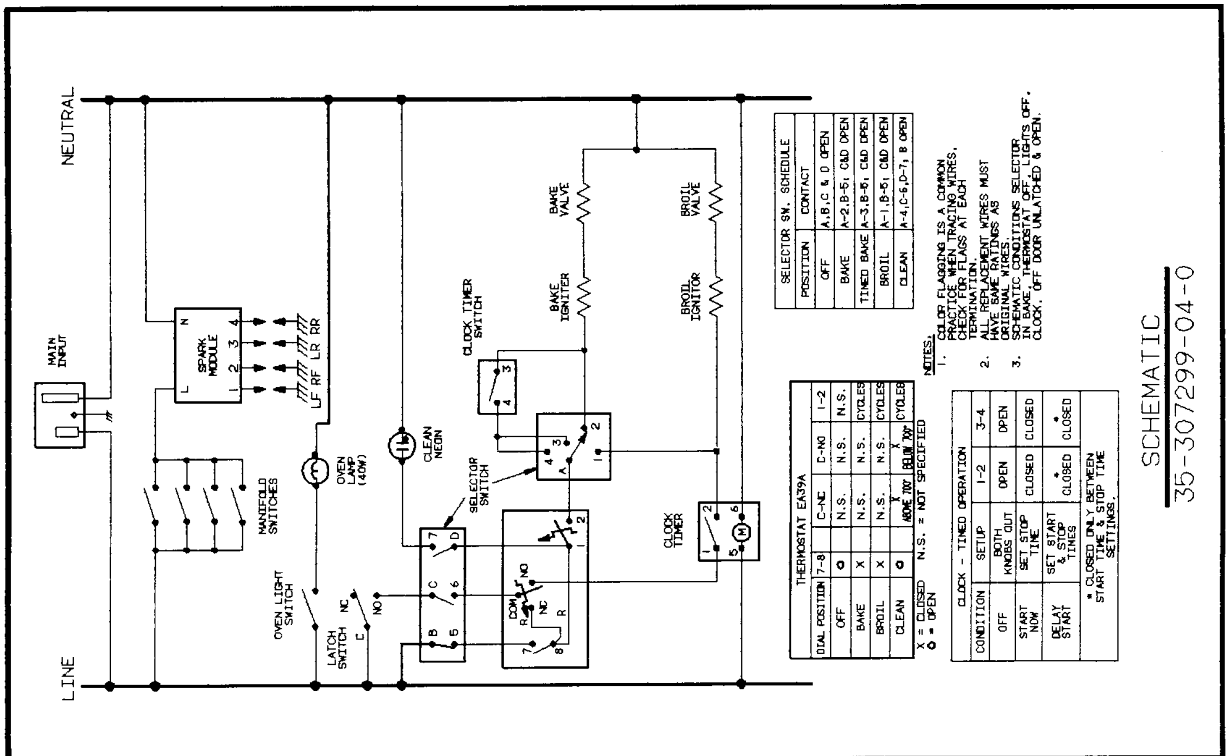
# WIRING DIAGRAMS AND SCHEMATICS

**⚠ WARNING** **TO AVOID POSSIBLE ELECTRIC SHOCK, PERSONAL INJURY OR DEATH DISCONNECT POWER BEFORE SERVICING. FOLLOW SPECIFIC STEPS LISTED IN THIS MANUAL FOR TESTING OR REPLACEMENT OF A SUSPECTED FAILED COMPONENT.**



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| SELECTOR SW. SCHEDULE | |
|---|---|
| POSITION | CONTACT |
| OFF | A,B,C & D OPEN |
| BAKE | A-2,B-5; C&D OPEN |
| TIMED BAKE | A-3,B-5; C&D OPEN |
| BROIL | A-1,B-5; C&D OPEN |
| CLEAN | A-4,C-6,D-7, 8 OPEN |

| THERMOSTAT EA39A | | | | |
|---|---|---|---|---|
| DIAL POSITION | 7-8 | C-NC | C-NO | 1-2 |
| OFF | O | N.S. | N.S. | N.S. |
| BAKE | X | N.S. | N.S. | CYCLES |
| BROIL | X | N.S. | N.S. | CYCLES |
| CLEAN | O | X ABOVE 700° | X BELOW 700° | CYCLES |

X = CLOSED N.S. = NOT SPECIFIED
O = OPEN

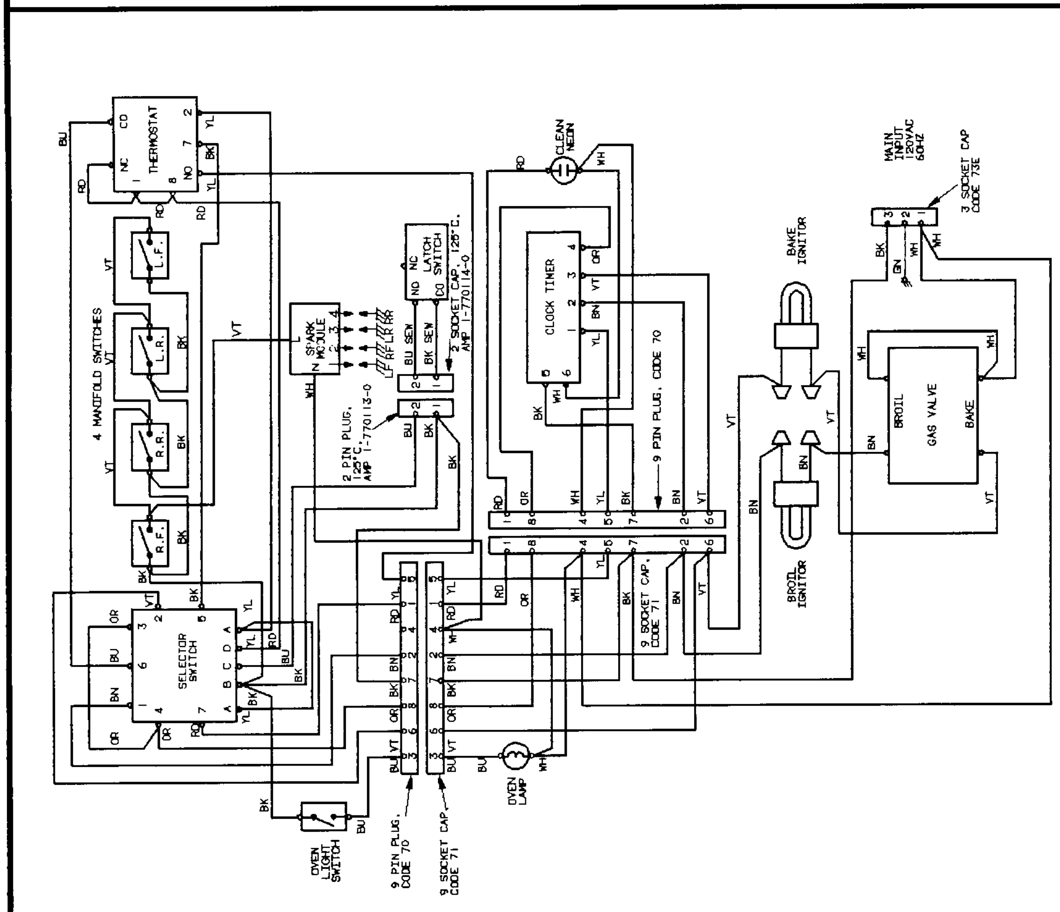
| CLOCK - TIMED OPERATION | | | |
|---|---|---|---|
| CONDITION | SETUP | 1-2 | 3-4 |
| OFF | BOTH KNOBS OUT | OPEN | OPEN |
| START NOW | SET STOP TIME | CLOSED | CLOSED |
| DELAY START | SET START & STOP TIMES | * CLOSED | * CLOSED |

* CLOSED ONLY BETWEEN START TIME & STOP TIME SETTINGS.

NOTES:

1. COLOR FLAGGING IS A COMMON PRACTICE WHEN TRACING WIRES. CHECK FOR FLAGS AT EACH TERMINATION.
2. ALL REPLACEMENT WIRES MUST HAVE SAME RATINGS AS ORIGINAL WIRES.
3. SCHEMATIC CONDITIONS SELECTOR IN BAKE, THERMOSTAT OFF, LIGHTS OFF, CLOCK, OFF DOOR UNLATCHED & OPEN.

SCHEMATIC
35-307299-04-0




DIAGRAM

ALL WIRES 18 GA. 150°C XL UNLESS OTHERWISE NOTED.

⚠ WARNING - ELECTRICAL SHOCK HAZARD - DISCONNECT POWER AT MAIN FUSE OR CIRCUIT BREAKER BEFORE SERVICING. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

RSS356 P1141233, P1141234
RSS358 P1130888, P1130875, P1141226, P1141231
RSS358CO P1141219

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